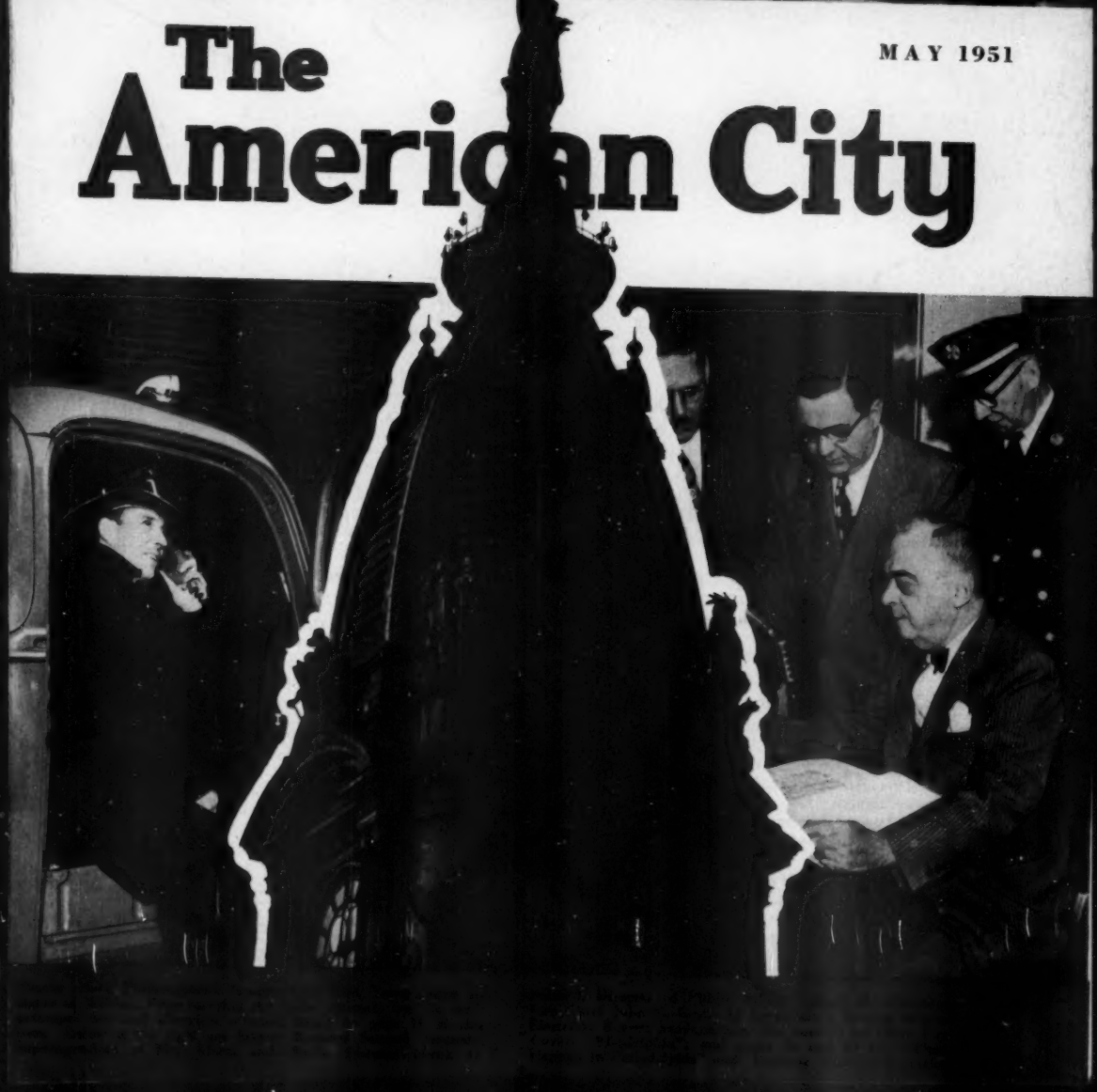
The American City

MAY 1951



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THE MUNICIPAL INDEX and ATLAS, used in connection with the current advertisements in THE AMERICAN CITY, places officials in the most favorable position to obtain all types of available equipment and supplies from manufacturers who desire to serve municipal government departments. This 827-page annual is published by The American City Magazine Corporation, 470 Fourth Ave., New York 16, N. Y.

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Our Municipal Notebook

"Be Kind to Councilmen" Week Suggested

THE Municipal League of Seattle, Wash., calls attention to the questionable value of organized campaigns by community groups to badger city councilmen via the telephone. In the March 31 issue of its Seattle *Municipal News*, the League says: "Public officials—believe it or not—are only human. Such nuisance calls serve only to irritate and likely will have an opposite effect to that desired. Particularly in bad taste is the too common practice of urging people to call city-council members and other officials at their home. Calling an official out of bed at 11 p.m. just to read the riot act is carrying the 'public servant' angle too far." As an alternative a "Be Kind to Councilmen" Week is suggested.

Current Electricity Bills, Municipal and Private

PERHAPS in these days of the high cost of almost everything, it is just as well that there are agencies keeping track of the comparable prices of electricity. This job has long been performed by the U. S. Bureau of the Census, and for a number of years prices have been analyzed and distributed by Burns and McDonnell Engineering Company, of Kansas City, Mo.

R. E. McDonnell has done it again for 1950 residential rates (in the form of household bills) for the 241 cities, with a population of over 50,000. The bills, recorded for 25, 100, and 250 kw-hrs. for each city, are tabulated in order of their amounts. For 25 kw-hrs., the lowest figures are 75 cents in Chattanooga, Knoxville, Memphis, and Nashville—all TVA territory. The highest is $2.25 for Orlando, Fla. The average kw-hr. use is 1,825 per year, or 150 per month.

In addition to this tabulation chart, showing both municipal and private rates, Mr. McDonnell supplies two other graphs of 42 and 74 cities in different population groups, all having municipal electric plants. The average kw-hr. rates for the municipal systoms in the 25,000-50,000 group are $0.83 minimum, $1.28 for 25 kw-hrs., $1.84 for 40 kw-hrs., $3.64 for 100 kw-hrs., and $6.85 for 250 kw-hrs. The average for the 74 cities with a population of 15,000 to 25,000 are $0.83 minimum, $1.27 for 25 kw-hrs., $1.85 for 40, $3.64 for 100, and 6.71 for 250.

Citizens and Planners Meet at Miami

FLORIDA hospitality, and planning and zoning problems and progress in the area, featured the annual meeting of the American Planning and Civic Association held at the McAllister Hotel in Miami, April 11-15, attended by a representative group of 200 planners and citizens.

Particularly interesting sessions were devoted to planning in cities of the South, urban redevelopment, downtown districts and decentralization, dispersal program for the Federal City, and highways and facilities.

Planning education, composition of planning boards, zoning protection for residence neighborhoods, citizens' organizations, and zoning for business and industrial districts were the topics of some of the lively panel discussions held during the meeting. Conservation; state, county and regional planning, and a series of short statements on the "Biography of a Plan" were other items on the agenda.

The rapid growth of Miami and the Dade County area was discussed by prominent personalities, and visits to some of the many public and private improvement projects currently under way or scheduled, were made through the cooperation of Frank F. Stearns, Secretary-Director of Planning for Miami, and Mrs. T. T. Stevens, Chairman, Regional Planning Council, Dade County.

Elected as a new member of the Board of Directors of the American Planning and Civic Association was Carl Feiss, Chief of the Community Planning and Development Branch, Division of Slum Clearance and Urban Redevelopment, Housing and Home Finance Agency. A full report on the conference proceedings will be published in the annual volume issued by the Association, located at 901 Union Hrust Bldg., Washington, D. C.

Unique Charter Voted

BY A VOTE of 259,647 for and 139,439 against, the citizens of Philadelphia, on April 17, accepted the unique type of "strong mayor" charter described in THE AMERICAN CITY last month (pages 118-119, April 1951). This new charter, framed by a special commission, goes into effect on January 7, 1952.

Defense Housing—World War II Lessons

THE editors of *Architectural Forum*, "The Magazine of Building," have reviewed the mistakes made in the large-scale housing program of World War II, and have drawn up the lessons to be learned. Briefly, they are:

- Housing must be considered a top-priority defense tool.
- The defense-housing program should be carried out by private builders.
- Temporary housing should be kept to a minimum.
- The shrinkage in house sizes should be checked.
- Defense housing should be no excuse for bad design.

Each of these points is developed in the magazine's April issue. Also included are field reports on two U. S. cities which are already feeling the defense-housing pinch; Aiken, S. C., and Wichita, Kans. Each reflects the problems which will face many another city as its factories accelerate their defense production.

To Stimulate Library Gifts as Memorials

OVER the years, the Public Library of Racine, Wis., has received an increasing number of books given as memorials in memory of a loved one or friend. To stimulate still further this desirable trend, City Librarian Frederick Wezman has issued two leaflets, pointing out that the Racine Public Library Board welcomes not only gifts of books but also gifts of money for memorial collections of books, or for the installation of new and needed library services, and as contributions toward the realization of an even greater objective—a new and adequate Main Library building.

The American City Quiz

Match Wits with the Experts

QUESTIONS

1. *What is a good per capita figure that might be justifiably dedicated to city planning in any municipality?*
2. *Is two-way radio practical for motorcycle patrolmen?*
3. *Does a useful guide exist which indicates how streets may be scheduled for resurfacing?*
4. *What is the greatest amount of bacterial pollution that chlorination has to handle when treating a public water supply?*
5. *What equipment should a well-equipped water-repair truck carry?*
6. *What sort of equipment is best for hauling brush?*
7. *Can the sanitary fill be used in residential areas for refuse disposal?*
8. *Is it necessary to digest sludge that will be piped or barged to sea for disposal?*
9. *What equipment works well for spraying trees in areas where the streets carry traffic and parked cars?*

(Answers on page 9)

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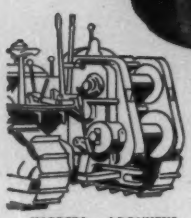

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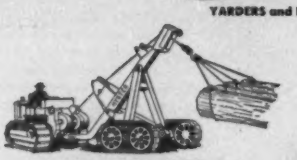

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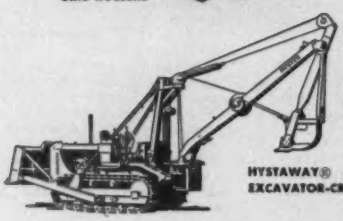

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Technological Speed Needs Also Good Community Design

THE Lakewood Park project in Los Angeles County, described on pages 100-102 of this issue, is an outstanding example of American technical skill and ability to organize for mass production. It is a timely reminder that the community-building process is a never-ending one, that every day the man-made "face" of the nation is changing, and also that our ability to create (or rebuild) a new environment for mankind is constantly accelerating with the increasing use of the equipment of modern technology.

That is why private developers, community builders, and municipal and county officials should take another long, hard look at the population and economic trends, and the physical development possibilities and potentialities within their respective areas. A short breathing spell from the intensive home-building production rate of the last several years is now provided through Regulation X and other government building-credit restrictions and production controls; though it seems clear that a substantial amount of building will still go ahead during the mobilization effort.

It should be clear by now that sound community planning and development is profitable to all concerned. Homes that are soundly built with ample indoor and outdoor space for family living and recreation represent the nation's best investment. Throughout the country outstanding large-scale builders, such as those represented in the Urban Land Institute, are devoting much thought and effort to the questions of how the maximum of community amenity can be combined with spaciousness of surroundings and good house design—all at costs within the average family's means. They know that such projects make money, maintain their reputations, and are long-range assets. Local government, of course, has an important interest in these questions. If a particular project proves to be a failure after a period of years, and there is deterioration in both individual structures and neighborhoods as a whole, the tax base can be seriously affected.

Lot size and community design are two indices, among others, such as house-quality, of a project's long-run worth and soundness. It is on these scores that the Lakewood Park project seems to be remiss. Fifty-foot lots, with a gridiron street pattern, have long been considered outmoded, even though other attractions and community facilities may be offered. A spacious, well-planned shopping center and the inclusion of garbage grinders in every home can never make up for these basic deficiencies.

Local governments should endeavor to "up" their standards for subdivision design wherever possible. Above all, they should also recognize that rigid regulations in themselves are not sufficient; builders and developers can often also be swayed to compliance with principles of good community design through voluntary means and by being shown alternative methods for improving their plans.

Building-Code Aid Offered All New York Municipalities

THE State Building Construction Code, now in preparation, will be available not only to 339 municipalities of New York State having building regulations, but to more than 1,200 other municipalities without regulations of their own, the State Building Code Commission reports.

The extension of the Commission's code, to include technical and consultative services to all municipalities, on an optional basis, results from amendments to the State Building Code Law passed at the recent session of the Legislature and signed by Governor Dewey on April 6, 1951. The Commissioner may be addressed at 1740 Broadway, New York 19, N. Y.

Timely Report on Television Regulations

PLANS for the expansion of television stations and channels, recently announced by the Federal Communications Commission, make extremely timely a report on "Television Requirements and Regulations" just issued by Planning Advisory Service * of the American Society of Planning Officials. This report (Information Report No. 24) discusses the characteristics and the requirements of broadcasting studios, transmitting antennas, and receiving antennas. It deals with the special requirements for space and height, with location, with the esthetic considerations, and the aspects of hazard. Methods of regulation through zoning and through the specific television ordinances, as well as through building codes, fire regulations, and FCC restrictions, are discussed. Included are excerpts from sample ordinances.

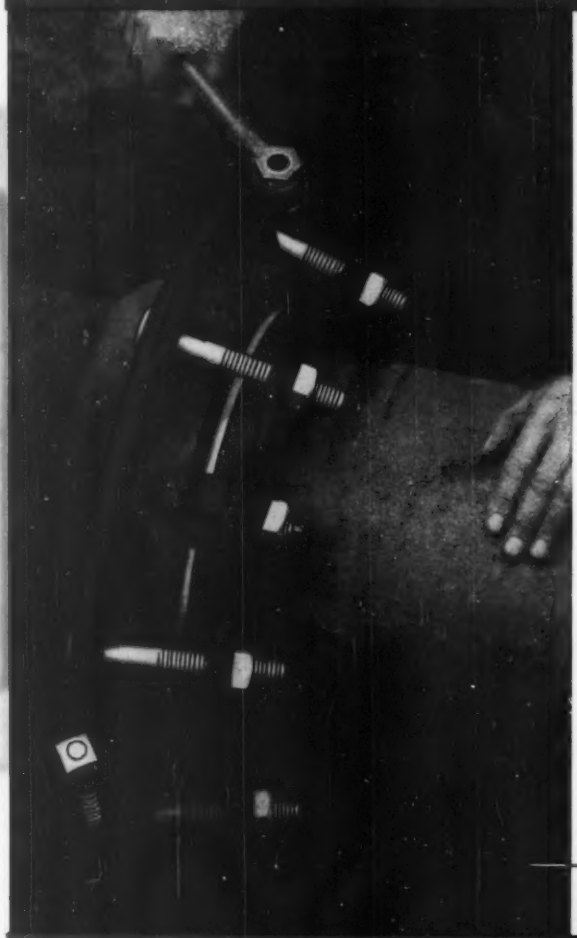
* Planning Advisory Service Information Reports are available only to subscribers. For further information, contact ASPO, 1313 E. 60th St., Chicago 37, Ill.

The "Organ Grinder" of the Future?

DRAWN FOR THE AMERICAN CITY BY GENE MARRIN

Will new ordinances be needed to curb television in the streets?

Sealed Gasket! 3/4" BOLTS!



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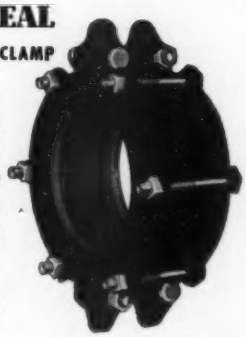

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Eleven Common Types Of Non-Property Taxes

The extent of use of non-property taxes as a source of cities' revenue is pointed up by statistics compiled by the International City Managers' Association for inclusion in the 1951 *Municipal Year Book.*

Covering only the 1,228 cities in the United States with a population over 10,000, the tabulation showed that at the end of 1950, 541 cities—more than 44%—used one or more of the non-property levies. Largely, these were big cities.

Non-property levies accounted for 34.6% of all locally raised city revenue in 1949, the last year for which totals are available.

Here's the list of 11 types of taxes and the cities over 10,000 using each:

Admission taxes	182
Alcoholic beverage taxes	34
Cigarette and tobacco taxes	62
Cigarette and tobacco taxes	62
Gross receipts taxes	196
Hotel taxes	4
Income taxes	24
Motor vehicle tax	113
Property transfer taxes	75
Retail sales tax	89
Utility taxes	259

1950 Population Figures

READERS OF THE AMERICAN CITY wishing to consult the 1950 preliminary population figures for any or all incorporated municipalities in the United States of over 2,500 inhabitants, will find this information in the 1951 *Municipal Index and Atlas*, beginning on page 172.

The Bureau of Census reports the following comparisons in the number of places in various population groups.

Population	*Number of Places*	
	1950	1940
2,500-5,000	1,554	1,407
5,000-10,000	1,091	920
Over 10,000	1,228	996
Total	3,873	3,323

Recreation Project for Baltimore and 4 Counties

WHEN Governor Theodore R. McKeldin of Maryland was Mayor of Baltimore, he initiated a magnificent recreation project for that city and four counties, the development of which is now assured. Speaking before the Advertising Club of Baltimore, on April 11, the Governor said:

'About six years ago I appointed a committee to study this great Patapsco River recreation project—then only a dream—and to draw up a plan for its development.

"The committee worked long and faithfully in cooperation with the State Planning Commission, the City Planning Commission, and other city, county and state officials, civic organizations, and private citizens.

"The group produced a plan for the development of about 16,600 acres, of which 1,560 are located in the existing Patapsco State Park, as a recreation and park area, starting in Baltimore City and extending up the Patapsco through sections of four counties—Anne Arundel, Baltimore, Carroll, and Howard. he plan calls for 75 miles of bridle paths, 60 miles of hiking trails, as well as golf courses, camping centers and swimming pools. There will be boating, canoeing, fishing and nature study, restaurants, snack bars in rustic buildings and shelters.

"It was this year's Legislature, on my recommendation, which made funds available for the acquisition of necessary land. The Assembly approved a $900,000 bond issue for this purpose, and we now can say that the project actually is launched."

Competitions Announced In "The School Executive"

TO encourage school systems to accelerate their efforts to improve communities, and architects to greater creativeness in the design of new school buildings, *The School Executive* magazine announces in its April 1951 issue two national competitions for which entries may be accepted until December 1, 1951.

For entry blank and detailed information apply to *The School Executive*, 470 Fourth Ave., New York 16, N. Y.

The American City Quiz

ANSWERS TO QUESTIONS ON PAGE 5

1. The American Society of Planning Officials reports that although, for many years, 25 cents per capita has been a rule of thumb of desired annual expenditures for planning, such a standard is more applicable to cities of 100,000 or more. The scope of the planning program, the variety of planning problems the community wishes its planning agency to tackle, and the general level of municipal services in a community are some of the factors to take into consideration. Philadelphia's figure for a cents per capita is the best figure for a large city. Among smaller cities, Palm Springs, Calif., had a planning budget of $1.82 per person; White Plains, N. Y., had an allotment of 38 cents per capita in 1950.

2. Yes. Examples are: Los Angeles—with 494 police motorcycles equipped with two-way radio developed by the Police Radio Technical Division, and Link Ventric, of Alhambra; and Philadelphia—with 154 motorcycles, most of which are radio equipped.

3. Professor R. A. Moyer and John Shupe, of the University of California's Engineering Institute of Transportation and Traffic, and Richard Gallagher, Director of Public Works, City of Berkeley, have developed a rating method. The rating is based on the need for resurfacing, determined by a roughness indicator; and benefits derived, determined by traffic count by portable automatic counters.

4. One of the greatest pollution loads occurs in the raw water used by Ottumwa, Iowa. The bacteria count ranges from 200 to 92,800; algae ranges from 20 to 23,400. It was in Ottumwa that much of the pioneering work took place to develop what now is known as "breakpoint chlorination." The finished treatment consistently provides zero bacterial count.

5. The repair truck built by Julius Nido, Water Superintendent, Waterbury, Conn., carries a Worthington Blue Brute compressor, with two reels of hose, a pavement breaker, and hammers. It also has a Payne Lean gate-valve operator, and air-powered Powerench for tapping machines and gate valves, an American LaFrance portable lighting outfit, a 2-inch Homelite pump, hand tools, and room for six men. This is mounted on a cab-over-engine Chevrolet truck.

6. The trend today appears to point to the use of a grinding or chipping machine that reduces the brush to a small compact load. East Orange, N. J., for example, uses an Asplundh chipper and can grind up brush as large as 6 inches in diameter. Harry E. Turner, Forester for the East Orange Shade Tree Commission, reports that the chipper allows him to load four to five normal loads on a single truck.

7. Wyandotte, Mich., finds that it can. Louis H. Moehr, City Engineer, has successfully used the sanitary fill to reclaim waste land for playgrounds near a built-up area in the city. The lots were 18 inches below grade. He took off top soil, stockpiled it, and made a trench 16 feet wide and 5 feet deep. Each day's deposit was covered, and the final deposit was covered with 24 inches of soil. He had a few complaints before the work started—none after.

8. From a sanitary standpoint, no; but from an economic standpoint, it may be wise. The great reduction in volume that digestion produces means substantially less sludge-handling equipment. After careful studies, the Boston sewage-treatment plants will pump digested sludge to sea.

9. Edward O'Hara, Superintendent, Shade Tree Commission, Milburn, N. J., uses a Lawrence Aero Mist Sprayer to attack a heavy infestation of cankerworm. The spray worked well with traffic on streets and did not leave drippings on cars.

Send in your suggested questions with the answers on municipal topics for use in this feature. THE AMERICAN CITY will make a small payment for each question accepted.

A Quiz Correction

Question: *Under what circumstances should "Walk-Wait" traffic signs be used?*

Answer: The Quizmaster regretfully reports that this question was answered incorrectly in the March issue. T. J. Seburn, Traffic Engineer, Kansas City, Mo., to whom we referred previously, has very kindly pointed out that many factors enter into the selection of these lights, and that he feels it impossible to summarize them in one short paragraph.

LASTING PROTECTION AGAINST MUNICIPAL WATER SHORTAGES

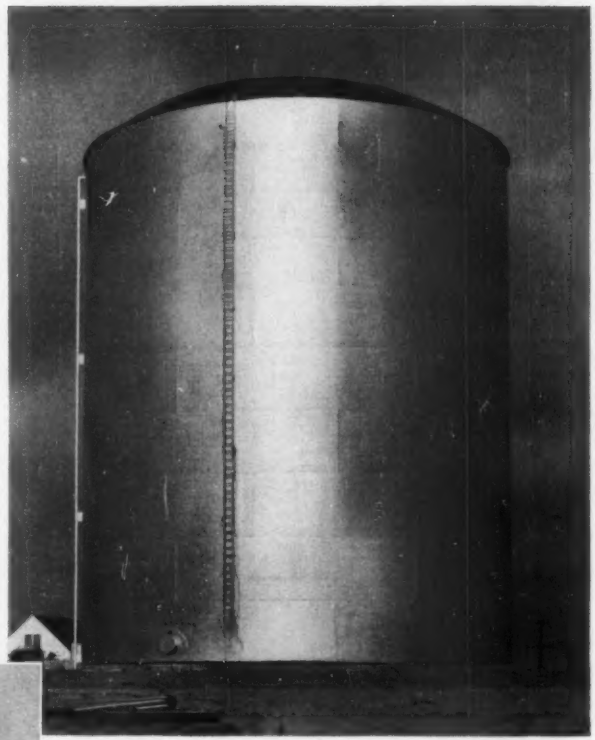
The success of a municipal water system is measured by its performance under all conditions. Day in—day out, there must be enough water to satisfy every consumer. That's why Elk City, Oklahoma, recently installed a 500,000-gallon reservoir and a 1,500,000-gallon standpipe to supplement 850,000 gallons of elevated storage.

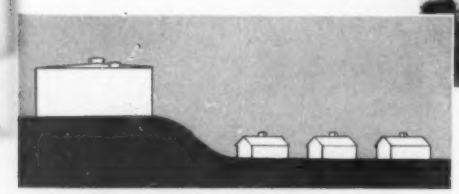
Elk City obtains its water from wells 18 miles away. Should anything happen to the long transmission main, the results could be quite serious. The required fire flow would not be available—and the city's health might be impared.

With these two new Horton standpipes boosting the existing storage capacity—there is, however, a sufficient quantity of water to supply immediate needs of Elk City's 8,000 people until regular service is resumed. And there will be for many years—because the standpipe is of long-lasting welded steel plate construction.

Horton reservoirs and standpipes are built in capacities up to 10,000,000 gallons. Horton elevated water tanks are built in capacities from 5,000 to 3,000,000 gallons.

Write us for complete details.





The new 1,500,000-gallon standpipe (shown above) is 60 ft. in diam. by 72 ft. high and the new 500,000-gallon reservoir is 52 ft. in diam. by 32 ft. high. When steel reservoirs are located on a natural elevation as shown at the left they provide gravity pressure in water distribution mains.

HORTON

WELDED STEEL STORAGE TANKS

CHICAGO BRIDGE & IRON COMPANY

Plants in Birmingham, Chicago, Salt Lake City, and Greenville, Pa.

Atlanta 3	2114 Healey Bldg.	Los Angeles 17	1503 General Petroleum Bldg.
Birmingham 1	1502 North Fiftieth Street	New York 6	3308-165 Broadway Bldg.
Boston 10	1002-201 Devonshire St.	Philadelphia 3	1616-1700 Walnut Street Bldg.
Chicago 4	2127 McCormick Bldg.	Salt Lake City 4	501 West 17th South St.
Cleveland 15	2236 Guildhall Bldg.	San Francisco 11	1533—200 Bush St.
Detroit 26	1501 Lafayette Bldg.	Seattle 1	1301 Henry Bldg.
Havana	402 Abreu Bldg.	Tulsa 3	1625 Hunt Bldg.
Houston 2	2101 National Standard Bldg.	Washington 6, D. C.	1163 Cafritz Bldg.

Water Supply and Treatment

Groundwater Supplies Found Not Declining

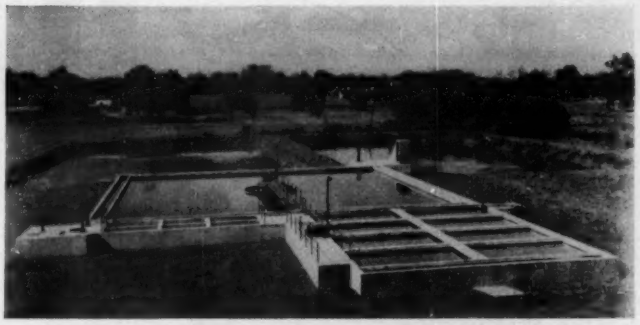
THE idea that groundwater levels have declined seriously over the entire nation was scotched recently by Professor R. M. Foose, head of the Geology Department, Franklin and Marshall College, at a recent Pennsylvania Water Works Association meeting. Groundwater levels, he explained, directly reflect the climatic conditions. Unless the area experiences an unusually severe drought, none but the very shallow wells are adversely affected. Throughout the nation today, groundwater levels are not greatly lowered, as most people would believe. In many places, they are now as high as or higher than they have been for many years.

Local shortages of groundwater have developed in areas of great industrial concentration and large populations. Generally, supplies are abundant and very much underdeveloped. It is in the densely populated and highly industrialized areas where the greatest danger of overdevelopment exists, and a program of conservation and planned use must be established.

Service-Line Construction

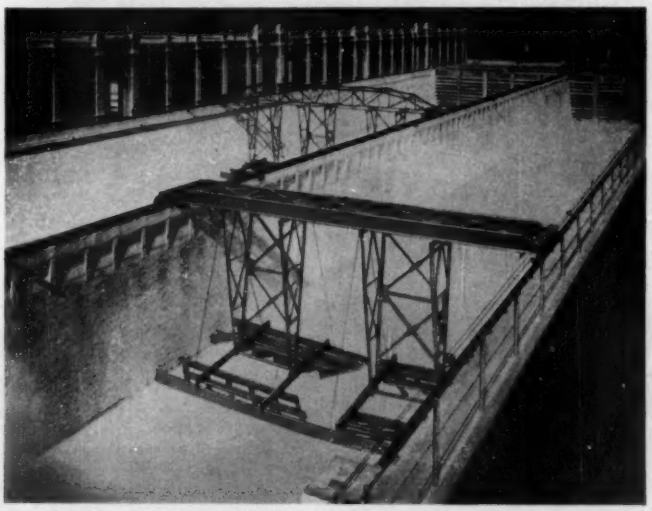
A Caterpillar diesel D-7 works with a 7-S bulldozer and a Hyster backhoe to complete a water- and sewer-service-line excavation job in Kenmore, N. Y.

Soft Water for Jacksonville, Ill.



In 1948, the City of Jacksonville, Ill., began an improvement program for its water softening process. The plant uses a Dorreo flash mixer, Dorreo Floeculator, Dorr Squarex clarifier, and Dorreo sludge pump. The plant is designed for a flow of 4 mgd. Casler and Stapleton, of Jacksonville, were consulting engineers. J. Blesse is plant chemist, and L. Quinlan, plant superintendent.

"Buenos" Water for Buenos Aires



Close-up of the monorakes at the San Martin water-treatment plant.

THE San Martin water-treatment plant in Buenos Aires, Argentina, serves an urban population of over 3,000,000 persons as well as those residing in several adjacent suburbs of the world's sixth largest city. Put into operation in 1912 with a design capacity of 316 mgd, the plant became overloaded in recent years, and a gradual modernization program is now well under way. As part of this modernization, Dorreo flash mixers, flocculators, and monorakes have been installed in two of the 12 sedimentation basins, and are now in operation. A close-up of the monorakes is shown in the picture. When all 12 basins have been similarly equipped, this portion of the plant will have a minimum capacity of 500 mgd. The work was designed by Obras Sanitarias de la Nacion, Buenos Aires, Argentina.

ACROSS AMERICA IN BIG CITIES...

SAN ...EGO...AMENTO...SPOKANE
EL PA...O...SALT LAKE...OMAHA
WICHIT...CITY...SIOUX CITY

15,000 CHICAGO 15,000

TERRE HA...IE...NIAGARA FALLS
SOMERVI...ELI...BETH...CHARLESTON
SAVANNA...OTTE...MIAMI BEACH

ALMOST 900 OTHER LEADING CITIES AND TOWNS

WHERE THEY CAN'T TAKE A CHANCE ON PERFORMANCE

IT'S MILLER

BY THE THOUSANDS

835 NO. WOOD STREET DUNCAN PARKING METER CORP. CHICAGO 22, ILL.

Street Cleaning and Refuse Disposal

Kingsport's Sanitary Fill

The landfill method of garbage disposal has replaced the open-dump method in Kingsport, Tenn. The city uses a Caterpillar diesel D4 tractor with a LeTourneau Carryall to compact and cover the refuse. Completed fill will be seeded to grass. Work is directed by City Manager D. W. Moulton and Public Works Director, C. K. Marsh.

References for "The Elements of Refuse Collection and Disposal," which starts on page 123 of this issue:

1. British Refuse Handling Practices, Part II, Nov. 1950, p. 92.
2. How Maryland Handles Municipal Refuse, Nov. 1949, p. 95
3. Trichinosis Incidence, June 1947, p. 17.
4. Garbage-Fed Hogs a Health Menace, August 1948, p. 19.
5. British Refuse Practice, Part I, Oct. 1950, p. 95.
6. Refuse Disposal for 40c per Ton, April 1946, p. 108.
7. Sanitary Fill Grows, June 1949, p. 17.
8. Where and How to Use the Sanitary Fill, January 1944, p. 56.
9. Some Sanitary Fill Operating Figures, Nov. 1947, p. 13.
10. What Happens Inside a Sanitary Fill?, May 1947, p. 11.
11. Sanitary Fill at Fort Worth, Texas, also correspondence, June 1946, p. 84.
12. Sanitary Fill Reclaims Wasteland, March 1950, p. 106.
13. A Park and a Playground Built with a Sanitary Fill, April 1950, p. 102.
14. Cold Weather Operation, August 1949, p. 108.
15. Mandan, N. D., Sanitary Fill Winter Operation, May 1950, p. 19.
16. Sanitary Landfill in Marshy Area, Dec. 1949, p. 110.

Glendale, Calif., Benefits By Incinerator-Bid Error

GLENDALE, CALIF., received national publicity and a bargain price for its new 112-ton incinerator that is to be built soon. The city recently asked for proposals and received a low bid from the Nichols Engineering and Research Corporation, 70 Pine St., New York City.

In checking the bid, the Nichols office discovered that an item of $38,000 for the smokestack had been omitted. The company endeavored to contact the city to see if the bid could be withdrawn. However, since bids had been opened and referred to the City Council for action, C. W. Nichols notified the Council that the company would stand behind the bid as submitted.

This was done by Mr. Nichols in spite of the fact that he had been advised that he could probably withdraw the bid without penalty. Mr. Nichols expressed his opinion, however, that the reputation and prestige of the firm is such that an error made by the company should be absorbed by it.

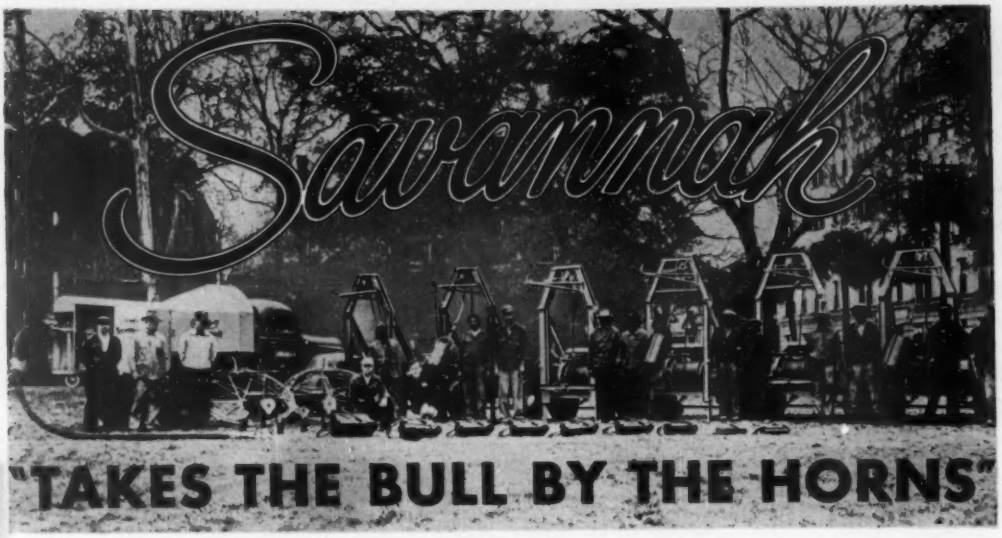
Detroit to Be Host To Public Works Congress

DETROIT, Mich., will play host to more than 1,000 public-works officials at the annual congress of the American Public Works Association, from September 16 to 19, according to Don Herrick, Executive Director of the Association.

About 60 equipment and materials exhibits will be displayed at the new Veterans Memorial Building where the conference will be held. First of the buildings to be completed in Detroit's planned civic center, the building was opened last June.

Wet-Leaf Collection

If leaves are wet and heavy, a front-end loader on a tractor does a serviceable job of picking them up and putting them into the truck. This leaf-clearing was done last year in Milwaukee. A Minneapolis Moline tractor with a front-end loader is doing this work.



"TAKES THE BULL BY THE HORNS"

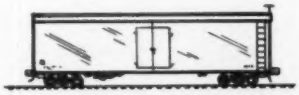
BOOSTS SEWER MAINTENANCE 75% WITH NO INCREASE IN BUDGET!

BULL STREET runs through the heart of old Savannah. Many sewers that serve this section of town are nearly a hundred years old—and, considering the recent growth of the city, severely overloaded. Collections from low-lying areas, additions of storm and sanitary sewers, sand deposits, dense root growths and other debris greatly reduced the efficiency of already overtaxed lines. City officials saw need for action.

They carefully studied all types of sewer cleaning equipment and selected **"FLEXIBLE"** Power Bucket Machines, SeweRodeR, Steel Rod Sets and power drive tools. Previous experience with the city's original Power Bucket Machine assured them of safe operation on old sewers where joints are not too tight. "Flexible's" operating speed of 125 feet per minute in moving loaded buckets assured them of economy too and helped point the way to increasing the efficiency of sewer cleaning crews by 75%.

That's why city officials literally "took the Bull by the Horns" and bought enough equipment to begin one of the most thorough and extensive sewer cleaning operations of any city in the United States!

A freight car load of **"FLEXIBLE"** equipment is now in operation—and not one additional man was added to the payroll.



A FULL CARLOAD OF "FLEXIBLE" SEWER CLEANING EQUIPMENT

AMERICA'S LARGEST MANUFACTURER OF PIPE CLEANING TOOLS AND EQUIPMENT...SEWER LINES...WATER LINES

"FLEXIBLE"

UNDERGROUND PIPE CLEANING CO. — **SEWER-ROD EQUIPMENT CO.**

9059 VENICE BOULEVARD, LOS ANGELES 34, CALIFORNIA

41 Greenway St.
Hamden 14, Conn.

147 Hillside Terrace
Irvington, New Jersey

2745 Meteor St.
Dallas, Texas

P.O. Box 465
Memphis, Tenn.

1115 Delaware Ave.
Fort Pierce, Florida

1212 Board of Trade Bldg.
141 West Jackson Blvd.
Chicago 4, Ill.

200 Magee Building
Pittsburgh 22, Penn.

9 South Clinton St.
Chicago 6, Ill.

29 Cordon Ave.
Roslindale 31, Mass.

801 East Excelsior Blvd.
Hopkins, Minn.

3786 Durango St.
Los Angeles 34, Calif.

4455 S. E. 24th St.
Portland, Oregon

351 West Jefferson Blvd.
Room 614, Dallas, Texas

Industry Treatment Plant Follows Domestic Design

WHEN Yale and Towne Manufacturing Company opened its materials-handling equipment division at Philadelphia, it recognized an obligation to the area by building a sewage-treatment plant to stabilize and purify its liquid wastes from the new plant. The plant follows meticulously the pattern of domestic sewage works.

The plant has a capacity of 200,000 gallons daily. At present employment levels, it receives approximately 120,000 gallons of sewage; thus it has ample capacity for future growth.

The wastes that the plant receives are sewage from sanitary facilities, residue from paint-spray booths, and neutralized pickle and plating liquors.

Its first treatment step is the familiar one of grinding. This takes place within the factory building itself. Here a Chicago Pump Company Size 10A comminutor macerates all solids and makes them easier to handle in the treatment plant, some 1,700 feet away.

The next step is primary settling, performed by two primary-settling tanks equipped with Link Belt sludge collectors. Each tank has a capacity of 7,700 gallons.

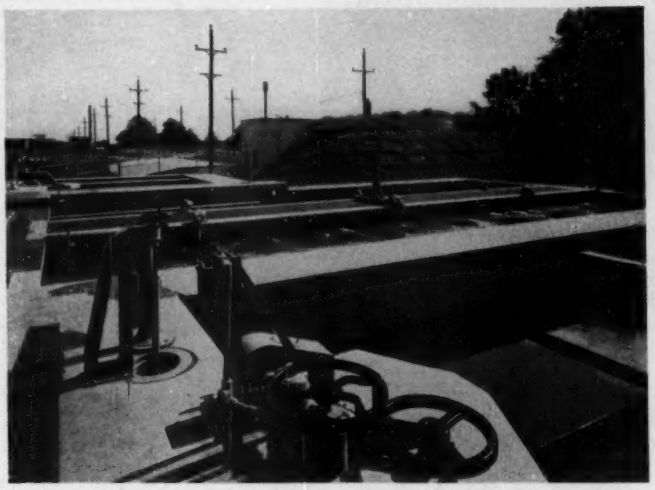
Sludge is drawn twice a day, pumped from a common sludge hopper by the American Well Works Scru-Peller sludge pumps to digestion tanks equipped with floating covers. Digested sludge is discharged to sand beds.

The sewage receives further purification by the activated-sludge process. The effluent from the settling tank flows over the wiers of the primary tanks into a trough where it is mixed with return activated sludge. It flows next into two aeration tanks of 51,000-gallon capacity each. Either of two Hoffman blowers, each with a capacity of 350 cubic feet of air per minute, supply approximately 200 cfm in these tanks. The air is diffused through 48 Chicago Pump Company carborundum tubes.

The aerated sewage then flows into two final settling tanks of 12,000-gallon capacity each. These also have Link Belt sludge collectors.

To conclude treatment, a Wallace and Tiernan chlorinator provides purification with the help of a contact basin that holds the sewage for 2 hours. Chlorinators give 0.5 ppm residual.

The final treated effluent is sparkling clear, with only a trace of sediment as measured in an Imhoff cone. It has a pH of 6.6 and meets the standards set by the state health department.



Above are the settling tanks, aeration basins, and digesters of the Philadelphia plant, which follows very closely the standard pattern of the municipal plant.

Pullman, Wash., Sewage-Treatment Plant

A view showing the layout of the Pullman sewage-treatment plant.

THIS is Pullman, Wash., however, not a Pullman car. The treatment is designed around the two-stage biofiltration to provide treatment for a population of 15,000. The two Biofilters in the foreground are served by 90-foot-diameter Dorrco distributors, with the primary and secondary Dorr clarifiers, each with a 70-foot diameter and 8½-foot side-water depth, directly behind them. Between the clarifiers is a 26-foot-long Dorr detritor which removes and washes grit from the incoming raw sewage. Flanking the administration building is a 35-foot-diameter Dorr Multdigestion system. The primary at the right is equipped with a high-capacity mixer, while the secondary at the left provides quiescent settling area and gas storage. The plant was designed by Stevens and Koon, consulting engineers, Portland, Ore., and constructed by the J. Lundberg Construction Company.

SETTLE THESE 2 QUESTIONS

—before you buy parking meters!

1 How much will it cost to keep them operating 5 or 10 years from now?

2 Will they earn as much 5 or 10 years after installation?

The manufacturer who can answer these questions with positive proof of meter performance over a five- or ten-year or even longer period of time, is the one you should do business with.

Some parking meters last much longer and earn more during their productive life than others. Why? Because certain types of meters are so complicated and the mechanism so intricate, they cannot take for any length of time the punishment to which meters are subjected. Sure, they'll operate, but it's a tough, costly job to keep them going.

MI-CO METERS ARE MANUALLY OPERATED They do not require the complicated mechanism necessary to operate so-called automatic meters. On some MI-CO models there are only six moving parts. As a result MI-CO's are seldom out of order. Their construction is rugged and simple. If a meter should require attention, the adjustment can usually be made in a few minutes at the meter location. Such dependability is reflected in extremely low maintenance and high earnings over a greater number of years.

And turning the handle of a MI-CO meter is no hardship on the motorist. It's no more effort than turning the ignition key of his car. The important thing is that the motorist gets the exact amount of time he buys—no more—no less—*and he gets it every time.*

Motorists like MI-CO's. Merchants endorse them. They build good will as well as regulate traffic.

Before you buy or replace worn out meters, let us send you the reasons why we believe your parking meter dollars will go much further with MI-CO's.

MI-CO METERS, 231 Court St., Covington, Ky.
Division of The Michaels Art Bronze Co., Inc.

Easily Built Segmented Circle Marks Airport Wind Tee

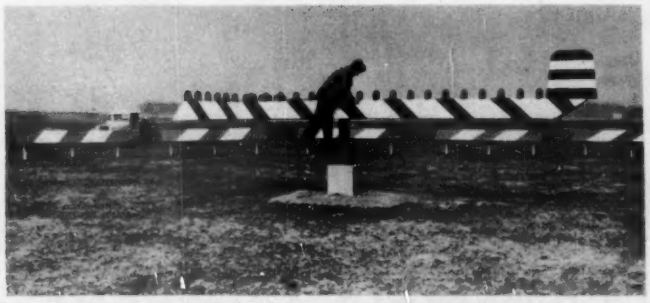
THIS segmented-circle type of airport marker makes it easy for visiting pilots to locate the wind tee. It is constructed entirely of wood. The international orange-and-white-painted stripes on the segments provide maximum visibility and contrast under all conditions of the field—either summer or winter. The sloping sides of the segments easily shed snow. They are 18 inches above the ground and would not be easily obscured—even by high grass or a heavy snowfall.

One of the 20 segments is movable to permit the entrance of snow plows, grass mowers, and other maintenance equipment. The movable segment is mounted on three 4-by-4's—one at each end and one at the middle. It is kept from turning over during high winds by four 1-inch galvanized-iron pipes driven into the ground, one at each corner, and with an elbow at the top holding the base.

The circle is 100 feet in diameter in accordance with Civil Aeronautics Administration standards. Each of the 20 segments is 12 feet long and the spacing between segments is 3.791 feet. The sloping top of each segment consists of six 1-inch-by-8-inch yellow-pine boards—three on each side. The bracing at the supports is made of 2-by-4's. Flat 1-inch-by-4-inch braces are installed midway between the supports. All supports are 2-by-4 cypress, driven 3 feet into the ground. The over-all height of the segments is approximately 36 inches.

This segmented-circle installation was designed by Douglas L. Barrett, Senior Civil Engineer of the Westchester County Department of Public Works, and was made at the Westchester County Airport at White Plains, N. Y. Installation cost was approximately $1,600.

This is a view which shows the end of the marker segments, with their 2-by-4-inch supports, 1-by-8-inch top boards, and 2-by-4-inch braces.



The lighted wind tee was moved to the center of the segmented circle from another part of the field to make it easier to spot it from the air. One of the segments is movable, to enable snow plows, mowers, and other field maintenance equipment to have access to the inside area. R. Ferguson, who is the field maintenance chief, is pictured changing the lamp on the Crouse-Hinds Wind Tee.

Close-up shows how the warning flag is mounted. Here it is protecting a high-intensity, unidirectional Revere light at Washington National Airport.

Flag Warns Snow Plows Of Runway Lights

A PIPE sleeve mounted vertically in the concrete pad of each flush-type or low-mounted runway light will serve to hold the staff of a warning flag for warning snow plows and mowing machines away from the light unit. If flags are installed for the lights, they may save knocking over and possibly breaking a number of them during one winter alone.

A ¾-inch-by-6-inch galvanized pipe sleeve threaded on one end, to which is attached a ¾-inch galvanized pipe coupling, is the usual size installed. The top of the coupling should be flush with the surface of the pad. The sleeve should be installed on the runway side of the light.

A piece of ½-inch garden hose is inserted in the sleeve, extending approximately 1½ inches above top of sleeve, then a ⅜-inch wooden dowel-rod is inserted in the garden hose. This makes a tight, flexible, and/or breakable flag staff. The length of the dowel-rod can be of any dimension above the top of the light. It all depends on how deep the snow is.

In more seasonable months the hose and the staff are removed and a pipe plug inserted in the sleeve, in lieu of the hose and staff, to keep dirt and other debris from entering the sleeve.

At Washington National Airport the flags protect unidirectional Crouse-Hinds, Westinghouse, and Revere high-intensity lights.

IS THIS YOUR CITY?
FIRE
FOR
FIRE
OPEN
THEN
PULL DOWN
HOOK
32
TOO FEW - TOO LATE!
Nearly 400,000 fires and two-thirds of the life loss by fire occur annually in residences. Delayed alarms and tragic consequences are frequently caused by inadequate box distribution in residential districts.

TRADE MARK
GAMEWELL
REG. U.S. PAT. OFF.

The **GAMEWELL COMPANY**

NEWTON UPPER FALLS 64, MASSACHUSETTS

IN CANADA: NORTHERN ELECTRIC COMPANY, LTD., BELLEVILLE, ONTARIO

Public Safety

Police Cars and Records Handled Centrally in Pittsburgh

By HARVEY J. SCOTT
Superintendent of Police
Pittsburgh, Pa.

THE new Central Communications and Record Division of the Pittsburgh Bureau of Police went into operation on October 30, 1950. The original planning for this division was started in 1942 by my order, but the war and equipment shortages made it impossible to carry out the plans until last year.

Remodeling and Installation

The entire second floor of No. 1 Police Station was remodeled and the latest equipment was secured, including a manually operated three-position multiple telephone switchboard, four new teletype machines, two new remote-control radio transmitters, and a new transmitting station and tower. Radio equipment was supplied by Link Radio Corporation, of New York City.

Every telephone call which comes into the Bureau of Police is received at the telephone room. No individual police station can be called directly. When the call is received, the telephone operators decide whether it is an administrative call or a call which requires police action. If it is an administrative call, one which, for instance, requires information on an arrest which happened in the past, the call is put through to the station concerned. If it is a call which requires police action, it is given to one of the four complaint officers in the radio and complaint room. The complaint officer puts all the necessary information on a police complaint form, time-stamps and numbers this complaint, and passes it across the desk to the radio dispatcher. The radio dispatcher looks at the electric map board, which is on the wall directly opposite him, to determine what police radio equipment is available in the area of that complaint. He then transmits the call to the proper radio car. As soon as the car acknowledges receipt of the call, the radio operator time-stamps the complaint form and puts it in a "temporary hold" file. When the radio car has completed the investigation on the complaint, he reports back on the radio, "detail completed," and is then given the central complaint number for this complaint form. The radio operator time-stamps the form and passes it to the record room. Thus there are three time-stamps on each: the times the call is received, transmitted to a radio car, and reported "detail completed." The complaint form then goes to the record room for filing by time and date, and is matched the next morning with the duplicate complaint form received from the radio car.

The radio cars, although assigned to stations for administrative purposes such as pay and time, are controlled and dispatched from the central control room only. No radio car is ever off the air unless the officer has been detailed on a call by the central-control room. Each police station has a monitoring speaker installed so that all radio conversations, both car to radio and radio to car, are heard in every station. Desk personnel at the stations are responsible for monitoring all police information which affects the station.

From the starting date (October 30) to November 30, 6,757 investigations were made by means of police-radio equipment; and from November 30 to January 2, there were 6,219 investigations made—over 200 calls per day.

The new central control system received a severe test during the great snow of November 24 to November 30. National Guard and Army troops were moved in to help keep vital services in operation and free the City of Pittsburgh from the paralyzing grip of 30 inches of snow. The control center was expanded to provide for an Army control center working in conjunction with the police system. In one hour enough additional telephones were installed and in operation to take care of the unprecedented load. The emergency was handled successfully.

New Fire Radio Covers Philadelphia

A NEW fire-control radio system places at least one piece of apparatus in every fire company in Philadelphia, Pa., in direct two-way contact with Station KGB-476, which is located in the city's Electrical Bureau communication headquarters. The equipment was designed and built by the Radio Corporation of America to double as an emergency dispatch network under plans approved by the city's Electrical Bureau and the Defense Council.

The new radio system gives the Fire Bureau six separate channels of communication between City Hall and the various fire stations and vehicles. It supplements existing public- and private-telephone installations, primary and secondary Gamewell telegraph circuits, and a David A. Bogen public-address system, at every fire company in the city. Should one or more of these systems break down, there would always be an auxiliary means of communication.

The installation includes two complete radio stations. One station is installed in the Electrical Bureau's communications room in City Hall, with its dual antenna rising 10 feet directly out of the hat of Penn's statue on City Hall tower, long the dominating figure on the Quaker City's skyline.

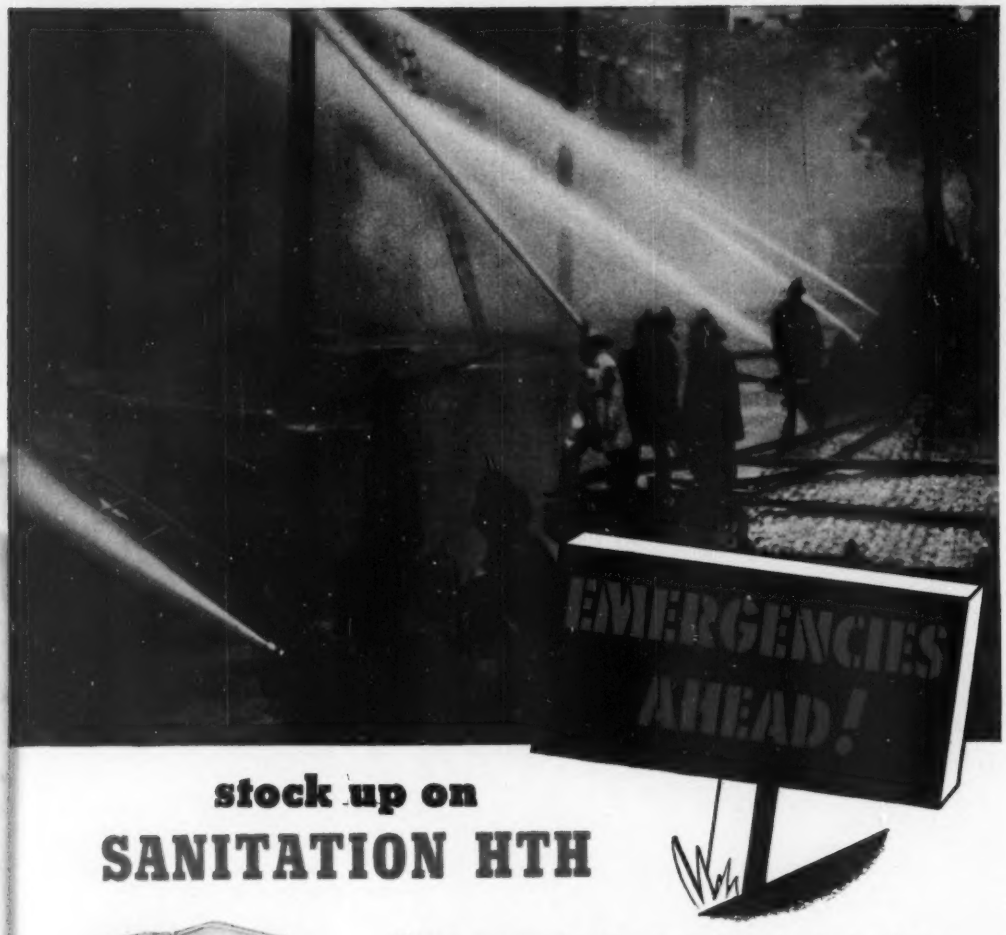
The second station is located at 46th and Market Streets in a new radio-repair shop and transmitter building, with antenna located on a 195-foot tower adjacent to the station. Each of the transmitting and receiving headquarters stations has been provided by RCA with two 250-watt transmitters, six station receivers, two custom-built consoles, and specially constructed cabinets containing elaborate automatic-switching controls. The latter provide complete control of all transmitters and receivers from either or both stations.

The dual transmitting system at both headquarters stations assures the city of exceptional protection in case of air attack. Major-General Norman D. Cota, Philadelphia Civil Defense Director, declared the new radio installation "a great step forward" in defense planning.

EDGAR P. GRIM, *Chief*
Philadelphia Electrical Bureau
Philadelphia, Pa.

EDITORIAL NOTE: Philadelphia's new fire radio is featured on the cover of this magazine. At top left are Chief Engineer of the Fire Department John C. Cost, seated, with Fire Marshall Department Chief George Kington, and Battalion Chief George Churchill, William Dorff, John Laughlin, William McKnight, and William Feeney. At top right are Edgar P. Grim, Chief of the Philadelphia Bureau, seated, and RCA telecommunications engineers, Zappacosta, Culp, Rammer; Superintendent of Fire Alarm and Radio Systems Frank O. Schierff, Supervisor of Radio A. Repici, RCA Representative Field, and M. S. Reutter, sales manager.

At lower right are Mayor Bernard Samuel, seated, with Mr. Schierff; Director of Public Safety Samuel H. Rosenberg, and Chief Engineer John C. Cost, of the Bureau of Fire. At lower left, a fireman is in touch with Electrical Bureau headquarters.



stock up on SANITATION HTH

Sanitation HTH is available in cases of nine handy 5-lb. cans or 100-lb. drums.

Not only severe conflagrations, but broken mains, floods and many other emergencies can overtax your chlorination system. For situations like these, it's wise to be prepared. And one of your most helpful assets is a good stock of Sanitation HTH. Its value as a versatile and reliable source of chlorine has been proved time and time again.

HTH is a 70% chlorine carrier – free-flowing, easy to use, handle and store. It will help you out during a major emergency as well as in such everyday jobs as sanitizing reservoirs, tanks, new mains and filters.

Check your supplies of Sanitation HTH today. Be sure to have sufficient stock on hand to keep pure water flowing to your users. For full information on the many practical uses of HTH, write for your copy of "Hypo-Chlorination of Water." Mathieson Chemical Corporation, Mathieson Building, Baltimore 3, Maryland.

Mathieson
CHEMICALS

8901

SERVING INDUSTRY, AGRICULTURE AND PUBLIC HEALTH

Street Construction & Maintenance

Alley Construction

A Caterpillar diesel D-4 tractor, equipped with an Austin overshot loader, does the preliminary grading for an alley-paving job in Amarillo, Texas.

Prestressed Concrete Urged

PRESTRESSED slab construction offers particular advantages for urban expressways and freeway separations where shallow depths are pertinent, according to Stewart Mitchell, Bridge Engineer, California Division of Highways, Sacramento. Mr. Mitchell expressed this opinion at the afternoon session of the American Concrete Institute's annual convention in San Francisco. But it will be accelerated only when American engineers take their eyes off European practices and develop fabrication and erection methods suitable to conditions here.

Considerable savings would be possible in depressed freeways and grade separations, Mr. Mitchell believes, because of reduced cost of the bridge superstructure and reduced excavation. Since prestressing allows less depth of beam, the reduced depth of over-passes would save substantial quantities of excavation as well as allow savings in cost of abutments, retaining walls, etc.

The use of prestressing will increase the economical span lengths of concrete slabs and girders, and will make this type of construction competitive in span lengths formerly reserved for concrete arches and steel structures.

If problems of standardizing lengths and skews and developing production methods can be satisfactorily solved, Mr. Mitchell feels that the greatest field for prestressed concrete may be in replacing the many inadequate short-span structures on state and county highways through the use of prefabricated prestressed units. By prefabrication and consequently more rapid erection, the cost of detours and traffic control is reduced. Prestressing will require lighter or fewer precast units of the same weight, which will reduce transportation and erection costs.

How Aerial Surveys Save Mapping Work

THE use of aerial surveys makes it possible to cut ground-survey work by 25% to 30%, according to R. Getty Browning, Chief Locating Engineer, North Carolina State Highway Commission. Mr. Browning explained this before the annual meeting of the American Road Builders' Association.

North Carolina's first aerial-survey work covered a length of about 54 miles through rather highly developed rural land. Its second piece of work included a strip about 75 miles long. For any proposed highway location, the state makes its first reconnaissance by the use of maps, that it has on file, showing state, county, and other roads. The second step is an actual inspection on foot for the entire length of the area. The aerial-survey contract is divided into two phases. The first covers the photography, and the second, the contour development.

In determining the proper location for interchanges, highway crossings, river crossings, railroad separations, and the like, Mr. Browning has found aerial photographs to be indispensable. Together with contour maps, they permit a close examination of a large area far more in detail and with much more accuracy than would be possible by ground reconnaissance alone, no matter how carefully it might be done. He has found also that the aerial photographs, if copied and made into a mosaic map, are of great value in both the field and office in explaining any situation of right-of-way complications or other suggestions.

The aerial pictures also provide stereoscopic studies of drainage areas that give dependable information that otherwise would be difficult to secure.

Cost per square mile is as follows:

	First (54 mi.)	*Second* (75 mi.)
Photography	$ 16.93	$ 16.55
Contours	652.58	491.00

Mr. Browning stated that the work, so far, has been such that the Commission expects to do much more aerial surveying in the future, since it can secure better results and save money.

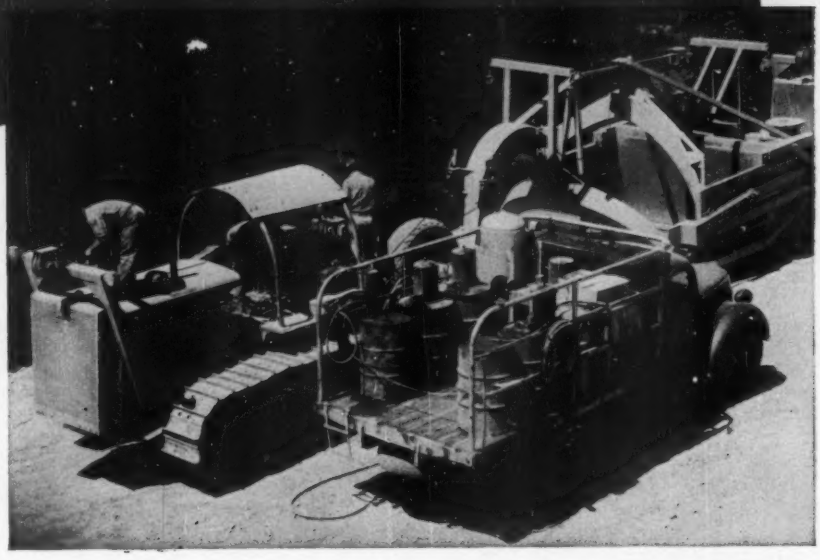
Spans

Our lives are spans. With spark divine
  We carry forward God's design.
Toward dignity and freedom's light,
  Each span helps others scale the height.
In slow ascent from primal fears
  Man builds his dream for future years—
A bridge transcending space and time,
  A glimpse of destiny sublime.
Inspired by goal perceived afar,
  Man builds the bridge from ape to star.

—D. B. STEINMAN

Dr. D. B. Steinman, New York City consulting engineer, is one of the world's outstanding living bridge designers. Bridges that first took form on the drafting boards in his office are serving to make transportation easier on five continents. They include the Florianopolis suspension bridge in Brazil, largest in South America; Triborough and Henry Hudson bridges in New York City, and many others.

KEEP YOUR EQUIPMENT ON THE JOB



Contractor's lubrication truck servicing equipment on road-building job in Oregon. Texaco products are used exclusively . . . *Texaco Ursa Oil X*** for engine lubrication, *Texaco Marfak* for chassis lubrication, *Texaco Marfak Heavy Duty* for wheel bearings, *Texaco Track Roll Lubricant*, and others.

. . . Service it with Texaco Lubricants

Maintenance costs and fuel consumption both come down when you lubricate engines—Diesel or heavy-duty gasoline—with *Texaco Ursa Oil X***. In addition, you'll get full power . . . more work and less downtime.

*Texaco Ursa Oil X*** is the fully detergent and dispersive oil with extra resistance to oxidation. It cleans as it lubricates . . . keeps rings free for proper compression and combustion. *Texaco Ursa Oil X*** stands up in the severest service . . . protects bearings from corrosion . . . assures longer parts life.

Use These Other Cost-Reducers, Too

To bring down chassis maintenance costs, use *Texaco Marfak*. It's longer lasting—won't jar or squeeze out of bearings. Protects against dirt, rust and wear. *More than 400 million pounds of Marfak have been sold!*

Assure longer wheel-bearing life by lubricating with *Texaco Marfak Heavy Duty*. It stays *in* the bearings, off the brakes. Greater safety—no seasonal change required.

Guard crawler track mechanisms against dirt, water and wear by lubricating with *Texaco Track Roll Lubricant*. Reduces maintenance costs.

Let a Texaco Lubrication Engineer show you how you can reduce costs with Texaco lubricants and the Texaco Simplified Lubrication Plan using only six lubricants to handle all major requirements. Call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO

TEXACO Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

TUNE IN . . . TEXACO STAR THEATER starring MILTON BERLE on television every Tuesday night. See newspaper for time and station.

Get What You Want—No Charge!

Please check over the list of interesting free catalogs on this and following pages. To obtain the literature you want, write directly to the manufacturers at the addresses given. If you prefer, you may circle the identifying numbers on this coupon and mail to THE AMERICAN CITY, *470 Fourth Ave., New York 16, N. Y., and we will see that catalogs are sent to you without expense or obligation.* 5/51

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Name ..... **Position** .....

Address .....

Pipe Locator, Leak Detector

400 The Dualtronic is a combination pipe locator and leak detector. Operated by one man, it is 11 pounds in weight, of rugged construction, and operates at low cost. It provides pin-point location of pipes, mains, gates, and tees. Full details will be furnished by The Goldak Co., 1544 W. Glenoaks Blvd., Glendale 1, Calif.

No Pump House Needed By Submersible Pumps

401 The Byron Jackson Co. has documented data showing that its BJ submersible pump and its special sealed motor operate successfully under difficult pumping conditions. The pump and motor operate under water and need no pump house. Write to the firm's Pump Division, P. O. Box 2017, Terminal Annex, Los Angeles 54, Calif.

Street Lighting Poles

402 Steel light poles, wood pole brackets, overhead double and overhead single wiring are manufactured by the Pacific Car and Foundry Co., Renton, Wash. The company on request will send literature describing its product which it claims is designed for high strength to provide against hazards of traffic accidents. Pacific Car columns are fabricated from 12-gauge corten steel or 11-gauge mild steel for normal use. The poles are octagonal and continuously tapered. The company also produces wood pole brackets and pole top extensions.

Front-End Tractor Loader For Winter and Summer Use

403 The Lull Shoveloader can be used for winter or summer operations. It rips pavements, digs hard materials, lifts and loads, scrapes, fills, and bulldozes. This front-end tractor loader has a long-reach bucket which permits rear loading of trucks. Among Lull attachments are lifting crane, sweeper, log lifting forks, special width bulldozer, concrete bucket, material bucket, moldboard extension for standard bulldozers, and loose material bucket. Illustrated literature will be sent by the Lull Mfg. Co., 3512 E. 44th St., Minneapolis 6, Minn.

Asphalt Smoothing Iron For Street Surfacing

404 The Surfa-slick, a self-heating asphalt smoothing iron, is hot in ten minutes and retains the heat the entire day. It is 40 pounds in weight, of rugged construction, simple and economical to operate, and saves labor costs. The iron has replaceable shoes. It leaves a smooth, level, thoroughly compacted and sealed asphalt surface, and can replace a roller for driveways, tennis courts, and gas stations. Further information will be sent by the J. E. Woods Mfg. Co., 1516 First St., San Fernando, Calif.

Longer Life For Truck Batteries

405 AD6X2 is a substance designed to extend the life and increase the power of lead and acid batteries used in police, fire, and public works trucks. Write Pioneers, Inc., 2411 Grove St., Oakland 12, Calif.

Small Maneuverable Street Sweeper

406 Wilshire makes big little street sweepers. The largest of the line sweeps a 48-inch width. For a full description of this Model 1,000, write Wilshire Power Sweeper Co., 526 W. Chevy Chase Drive, Glendale 4, Calif.

Street and Road Maintainer

407 Hydraulically controlled attachments on the Huber maintainer quickly and easily convert it to a bulldozer, lift loader, highway mower, berm grader, broom, road planer, patch roller, or snow plow service. Powered by a 42½-hp engine, the 6,000-pound machine has better traction and less power loss because the blade is pushed by Huber's modified A-frame design and power is transmitted directly to the moldboard directly to the driving wheels. Full details will be sent by the Huber Mfg. Co., Marion, Ohio.

Underwater Pipelines

408 The Boyce Co., Inc., Clearwater, Fla., last year installed a submerged pipeline for the City of Tampa Water Department. The construction method employed permitted continuous boat traffic through the channel. The pipeline, which operates at 112 pounds maximum water pressure, was installed in a trench 8 feet deep under the channel. Full details on its work will be sent by the company, which specializes in submerged pipelines.

Fit Concrete Streets To Traffic Needs

409 *Concrete for Every Traffic Need* is the title of a free booklet issued by the Portland Cement Assn., Dept. A4-4, 33 W. Grand Ave., Chicago 10, Ill. This national organization improves and extends the uses of portland cement and concrete through scientific research and engineering field work.

Aggregate Spreader Builds Better Streets

410 The flexible keyboard of tempered spring-steel in the Good Roads Handy Spreader permits obstacles in material to drop through without clogging or marring spread pattern. Other features are no shifting of gears, instantaneous shut-off, and a powder fine carpet spread to a 3-inch depth. Full details on this machine, available in 5 models up to 12 feet in width, will be furnished by the Good Roads Machinery Corp., Minerva, Ohio.

(Please Turn to Page 25 for More Literature)

Glass Protection For Steel Pipes

411 Fiberglas Coromat wrap gives strength for best protection of your steel pipe. It provides controlled porosity, bleed-through, enamel thickness, and positive anchorage of wrap. Coromat, inorganic Fiberglas outer wrap, protects the corrosion protection. These products developed in glass-corrosion protection technique are made by Owens-Corning Fiberglas Corp., Nicholas Bldg., Toledo 1, Ohio.

Combinator Tractor And Air Compressor

412 Tractair is a combination tractor and air compressor able to operate many attachments. According to the Le Roi Co., Milwaukee 14, Wis., the machine's versatility gives you extra hours of usage. It is employed for digging, pavement patching, and mud jacking. Tractair has 8 quickly interchangeable accesories, and a new attachment, a hydraulically controlled back-hoe for digging ditches. Write to Le Roi for further information.

Street Sweeper

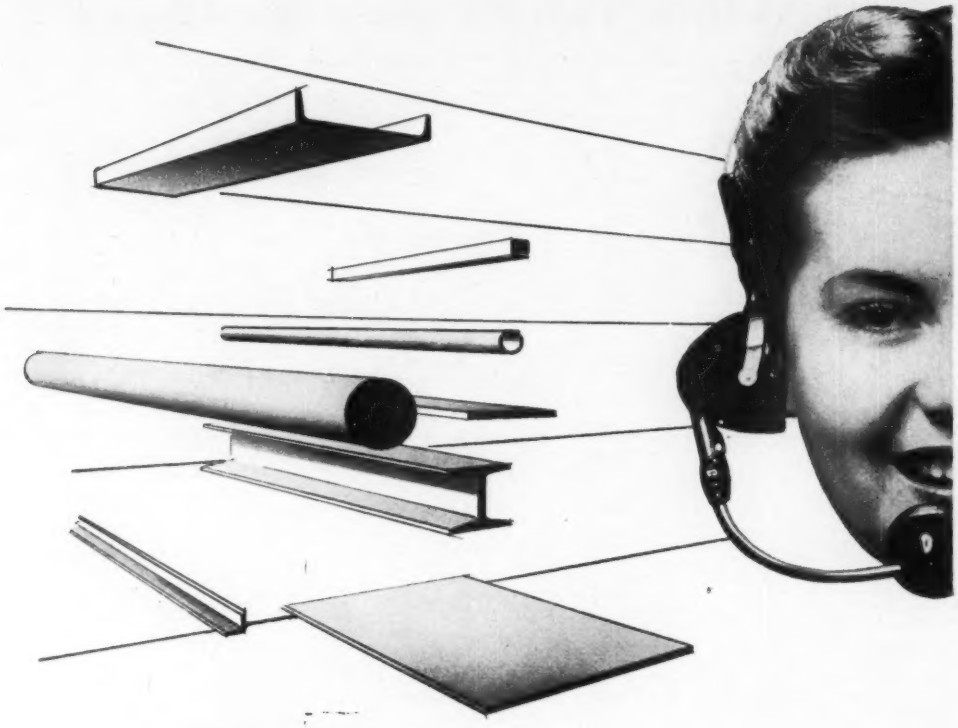
413 The Model 40 street sweeper has fingertip hydraulic control which moves hopper gate to carrying and dumping positions. It dumps to the rear, and resumes sweeping in less than a minute. The rear broom is easily accessible for inspection or refilling. This street sweeper drives like a truck and provides clear visibility. For further information, write to Austin-Western Co., Aurora, Ill.

Garbage Grinder Plan Benefits Community

414 Serious garbage problems are solved by the community-wide garbage grinder plan sponsored by the Given Mfg. Co. The firm claims that its plan saves in labor and equipment, and that the entire community will be free of the garbage existence. It invites public officials to investigate its program by writing for the complete plan in detail. When writing for the booklet, *Community-Wide Garbage-Free Living*, address your query to the company, Dept. AC4, Given Mfg. Co., 1250 Wilshire Blvd., Los Angeles 17, Calif.

Provides Real Economy In Street Construction

415 Learn how Long Beach, Calif., builds high-type streets at low cost by using a Wood, Single-Pass roadmixer. Get full details on the way this fast-acting equipment has worked on highway and airport construction. All this is contained in the new booklet being issued by the Wood Mfg. Co., Box 620, 6930 Tujunga Ave., North Hollywood, Calif.



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CARBON STEEL BARS—Hot rolled and cold finished
STRUCTURALS—Channels, angles, beams, etc.
PLATES—Many types including Inland 4-Way Safety Plate
SHEETS—Hot and cold rolled, many types and coatings
TUBING—Seamless and welded, mechanical and boiler tubes
ALLOYS—Hot rolled, cold finished, heat treated. Also tool steel
STAINLESS—Allegheny bars, plates, sheets, tubes, etc.
BABBITT—Five grades, also Ryertex plastic bearings
MACHINERY & TOOLS—For metal fabrication

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JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • PHILADELPHIA • CINCINNATI • CLEVELAND
DETROIT • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO

Which Catalogs Interest You?

Write directly to the manufacturers, or use the coupon on page 23

Cut Digging Costs With This Power Machine

416 The new Sherman power digger cuts digging costs. Its patented, actuated bucket gives you selective digging action, better loading, and greater versatility. Efficient performance is assured by its heavy-duty hydraulic cylinders. The machine digs ditches, trenches, footings, culverts, basements and handles roots rocks, hard clay and oiled road surfaces. Further information will be supplied by Sherman Products, Inc., Royal Oak, Mich.

Make Municipal Rest Rooms Modern

417 The American Radiator & Standard Corp. manufactures a new urinal for women which is made of non-absorbent, easy-to-clean, genuine vitreous china. It is adaptable to hand or foot flushing. For full details on this product for public rest rooms and other Sanistand fixtures, write to the firm's Dept. AC-3, Pittsburgh 30, Pa., asking for the pamphlets, *Better Rest Room Guide* and the *December Room of the Month Ideas.*

Autoflow Traffic Signals

418 Southern Signals, Inc., 222 Beach St., Box 1303, Shreveport, La., manufactures traffic signals which are lightweight, versatile, and efficient. Weather-proof and dust-proof, the device has interchangeable parts and sections, adjustable lamp focusings, and spun aluminum high-efficiency Alzak reflectors. Write for free booklet.

Modern Swimming Pools

419 Modern indoor and outdoor swimming pools are designed by Wesley Bintz, consulting engineer, 301 S. Washington Ave., Lansing, Mich. Other services are park layouts with designs for playgrounds and picnic areas; community buildings and associate structures, and lectures with motion pictures and slides. Among the designs of swimming pools are the Avoid, Vasois, rectangular, twins, or irregular, as well as sunken and combination pools. Mr. Bintz has designed, supervised, and contracted structures covering pools for municipalities, country clubs, amusement parks, industries, commercial enterprises, real estate developments, and private estates. Write for descriptive literature.

Quick Priming Two-Inch Pump

420 The Gorman-Rupp Co., Mansfield, Ohio, on request will send Bulletin No. 7-LW-13, which describes the Pelican, a light-weight, two-inch portable pump that primes and pumps quickly. Its suction lift is 25 feet at sea level, and it is non-clogging. Other models are the Midget, 1½-inch pump; Hawk, 2-inch, and the Eagle, 3-inch. The company's light-weight pumps are used for utility and municipal applications.

Better Pest Control For Shade Trees

421 A fast, thorough coverage of large areas is achieved with the use of the John Bean Rotomist, a hydraulically controlled machine which delivers atomized spray concentrate to combat pests. An auxiliary blower in a 240-mph air stream pre-atomizes so that the spray centers on low air velocities and does not damage trees. Another product of the John Bean Division of Food Machinery and Chemical Corp., Lansing 4, Mich., is the John Bean Ranger, an all-purpose municipal sprayer for weed, insect, brush, and pest control. When writing for information, address your request to the company's Dept. AC-5.

Clean Swimming Pools

422 The Roberts Filter Mfg. Co., 660 Columbia Ave., Darby, Pa., produces gravity and pressure filters, water treatment equipment, and recirculation apparatus. In a 400,000-gallon swimming pool, the Roberts' horizontal-pressure filter recirculates and cleans the water in a few hours with minimum waste. Write for details.

Cones for Traffic Control

423 Trafficones are of flexible rubber construction, but look like steel. They provide an economical method of controlling traffic for protection of workers and equipment, while guiding motorists into avenues of safety far in advance of danger zones. They require a minimum of storage space, can be set up quickly, and are easy to handle. Full details on Trafficones, which are low in cost and give long life, may be obtained from the manufacturer, Interstate Rubber Products Corp., 938 Avila St., Los Angeles 12, Calif.

Fire Trucks

424 Mack 505 and 75 fire trucks are rugged and durable, reports the Mack Mfg. Co., Fire Apparatus Division, Long Island City 1, N. Y. From sturdy front bumper to roomy tailboard, they are designed and built to be safer, stronger and more dependable. Among the features are the individually adjustable driver's seat and push-button priming which eliminates the need for ground gear-shift control. Type 505 has a 500 gpm triple-combination pumper and 75, a 750 gpm triple-combination pumper.

Pump Controls Used For Elevated Tanks

425 The Automatic Control Co., St. Paul 4, Minn., has published a new bulletin introducing its multi-pump Mototrol. Bulletin 1210 tells about pressure-operated pump controls for elevated tank systems using two or more pumps. The Autocon Twin Bellows design is described in the booklet as assuring greater accuracy over a period of time. According to the firm, multi-pump Mototrols provide pin-point accuracy, and greater sensitivity and flexibility.

Equipment for Playgrounds And for Swimming Pools

426 Slides, swings, and coasters for playgrounds and chutes, diving towers, and ladders for swimming pools are among the products of the General Playground Equipment, Inc., Kokomo, Ind., which recently issued a new catalog, No. 24, describing its complete line. The firm states that it uses quality materials and skilled workmen on its play equipment. The company also manufactures items for camp and picnic cooking, life-guard chairs, and improved pool-cleaning equipment.

Lawn Mowers

427 Modern mowing equipment for service in parks, cemeteries, golf clubs, public institutions, industrial plants, and private schools is provided by roller-type mowers powered with Briggs & Stratton motors, commercial type, as made by The Cooper Mfg. Co., 454-456 S. First Ave., Marshalltown, Iowa. The firm will send literature on its mowers which have new, heavily reinforced, all-steel welded decks for added strength and rigidity, and which are equipped with rubber-covered steel roller and caster wheels.

Street Lighting Brackets

428 Hubbard upsweep lighting brackets meet a need where wood poles are used and short brackets are adequate. Model No. 23104 has the new lag screw attachment for wood poles. It meets all current strength and design requirements and permits maximum elevation of luminaire, threaded, or slip-fitter style. Because of the Hubbard key-hole feature, only one man is needed to install the equipment. For complete details, write to Hubbard and Co., 6301 Butler St., Pittsburgh 1, Pa.

Line Markers For Traffic Control

429 A one-man and one-hand operation, the FlorLine is gravity fed and has no attachments. It is employed for street, safety, and parking lines at walking speed. Priced at $97.50 f.o.b. Detroit, the device makes curved, straight, continuous or skip lines 2, 3, or 4 inches wide with interchangeable carriages. It holds 1½ gallons of paint, lacquer, or whitewash. For folder and literature, write Dept. MB of the H. C. Sweet Co., 12083 Woodbine Ave., Detroit 28, Mich.

Bridges Constructed Of Engineered Wood

430 An illustrated folder showing the five basic bridge types has been published by Timber Structures, Inc., P. O. Box 3782-X, Portland 8, Ore. These types, constructed of engineering wood, include deck arch, bowstring truss, parallel chord truss, and composite deck and girder. The low-cost bridges give years of service and need minimum maintenance.

Civil Defense Guide To Mobile Communications

431 In the interest of civil defense, a 16-page booklet, *A Guide to Mobile Communications for Civil Defense*, has just been published by The Leece-Neville Co., Dept. 14, Cleveland 14, Ohio. The firm, manufacturer of electrical equipment, will send a free copy to anyone interested in public protection, or civil defense. Write to the company's Dept. 14.

Safety Lantern

432 The Night Watch is a safety lantern that projects a parallel, vertical beam of great intensity. It has a trip-lock to release the chimney and its fresnel globe is molded with optically correct prisms in echelon. For full details of this lantern, which is 8 inches high, with a 6¾-inch diameter at its sturdy base, write to R. E. Dietz Co., 225 Wilkinson St., Syracuse, N. Y.

Split Coupling Clamps

433 Skinner-Seal split coupling clamps can be installed in from 5 to 15 minutes to repair broken water mains. One man can make this dependable, lasting repair. The manufacturer, the M. B. Skinner Co., South Bend 21, Ind., reports that its product is built to outlast the main and is tested to 800 pounds.

How a Bonding Company Kept a Big Project Going

434 Recently, in Tampa, Fla., a defaulting contractor threatened the completion of a $12,000,000 sewerage contract. The fast, effective service of the bonding company prevented delay and assured work continuity, thus rendering a very timely public service to the City of Tampa. Further information on this type of bonding service may be secured from the National Surety Corp., 4 Albany St., New York, N. Y.

Clean Street Sweeping, High-Speed Travel

435 The Conveyor Co., 3260 E. Slauson Ave., Los Angeles 58, Calif., has designed its Mobil-Sweeper to travel at top speed of 55 mph when not sweeping. Its system of brooms do a thorough clean-up job. It carries a 200-gallon tank, capable of spraying decontaminating solutions for civil defense. It has a 2-2/3-cubic-yard hopper, powerful engine, and 4-wheel brakes.

Pump Meets Sewage Disposal Needs

436 A Mixflo pump that will meet your sewage disposal needs is manufactured by the Worthington Pump and Machinery Corp., Harrison, N. J. The machine has non-clogging, two-vane closed impellers, grease-lubricated anti-friction bearings and easy accessibility to the split stuffing-box gland and impeller eye. Write for *Bulletin W-317-B16* which describes the Mixflo types, available in 10-, 12- and 16-inches sizes.

Street Signs

437 The Ferro Enameling Co., 1100 57th Ave., Oakland 3, Calif., will send information on its Ferro street marking signs. They are made of quality steel, are deeply embossed, and finished in brilliant, permanent porcelain enamel.

(See page 26 for more Bulletins)

Preferred power for garden tractors and a wide range of other agricultural equipment — the world's most widely used single-cylinder gasoline engines on machines and tools for industry, construction, railroads, oil fields, etc., and on appliances and equipment for farm and home.

"PREFERRED POWER" for home, farm, and industrial equipment — powered by gasoline engines. Briggs & Stratton Corporation, Milwaukee 1, U.S.A.

In the automotive field Briggs & Stratton is the recognized leader and world's largest producer of locks, keys and related equipment.

Other Catalogs

Write directly to the manufacturers, or use coupon on page 23

Fight Waste Program For Chain Saws

438 Today, chain saws are in short supply and parts are difficult to obtain. Because of this situation, Henry Disston & Sons, Inc., 11D Tacony, Philadelphia 35, Pa., is conducting a Fight Waste program to keep chain saws in good working condition. The company advises to clean, oil, and service the saw. Without cost, Disston furnishes preventive maintenance booklets and check-up charts. Disston dealers are cooperating with the Fight Waste program. The company suggests that you take your chain saws to them regularly for a check-up.

Playground Equipment

439 The J. E. Burke Co., Fond du Lac, Wis., on request will send a complete catalog describing playground equipment. Among its products are climbing structures, swings, slides, see-saws, merry-go-rounds, turning bars, and horizontal ladders. The company reports that its equipment is designed expressly for safe and healthy play and is strongly constructed with durable materials. When asking for catalog, write to Dept. K.

Automatic Voting Machines Cut Election Costs

440 The Automatic Voting Machine Corp., Jamestown 55, N. Y., has records to show how much these machines reduce election costs in various cities. The firm will furnish details about this equipment, and will explain how voting machines can provide similar savings in your community.

Makes Pipe Tapping Easy

441 An Eddy mechanical joint cutting-in valve and sleeve on an existing pipe can be installed on an existing pipeline in 25 minutes, states the Eddy Valve Co., a subsidiary of James B. Clow & Sons, Waterford, N. Y. Every joint is bottle-tight under pressure without caulking or lead-melting. Valves are available in 3 to 12-inch sizes for sand-cast and centrifugally cast iron water pipe.

Heating Kettle For Street Repairs

442 Style W heating kettle provides fast heating of tar and asphalt for street and airport runway repairs. Available in 75, 110, 165, and 210 gallons, the kettle is manufactured by the Connery Construction Co., 4000 N. Second St., Philadelphia 40, Pa. Write for Bulletin 87 describing this machine.

Power Scythe

443 For spring and summer, use Jari's power scythe which cuts weeds, brush, and grass. Other attachments on this self-propelled machine with a 1½-hp engine, are the rotary snow plow for fall and winter, and the sprayer. Write for free literature which will be sent by Jari Products, Inc., 2938 Pillsbury Ave., Minneapolis, Minn.

This Machine Complete 3 Times as Many Sewer Jobs

444 This Bantam clamshell on rubber tires, a product of Schield Bantam Co., 234 Park St., Waverly, Iowa, completes three to four sewage repair jobs a day, including breaking through 20- to 30-inch pavement and digging down 10 to 12 inches to make the repair. The machine is also employed for stockpiling and loading sand, cinders, and aggregate. It has a ⅝-yard capacity with a ½-yard rehandling bucket, a 1½-yard snow bucket and can be mounted on a new or used tandam-axle truck.

Fasten Street Signs Securely

445 Stainless steel strap and galvanized steel used for attaching street signs and highway markers are made by the A. J. Gerrard & Co., 1952 Hawthorne Drive, Melrose Park, Ill. The company will provide a demonstration of its equipment, free of charge.

(See page 28 for more Bulletins)

Sgt. Robert Chrisman levels a field at the eastern end of the Davison airstrip, Ft. Belvoir, Va., with a "Cat" D7 Tractor. In the background are four "Cat" No. 12 Motor Graders completing runway.

THE MILITARY GETS FIRST CALL

THESE "Caterpillar" earthmoving machines, working on the runway of the Davison airstrip at Ft. Belvoir, Va., show at a glance where a lot of "Cat" equipment is going these days. And that's how it's got to be.

Defense Rated Orders get first call as America's military establishment prepares for what may come. The urgent build-up of our power has meant drafting machines as well as men. An ever-increasing flow of "Caterpillar" equipment and parts is going to the support of America's fighting men and to defense projects.

This means that there already exists a scarcity of "Cat" equipment and engines for civilian use. So it is to *your* advantage to make the machines you now have *last*. You can keep them on the job longer by doing these things:

1 Follow sound and recommended operation and maintenance procedures to the letter. Read and reread your Operator's Instruction Book.

2 Make full use of your "Caterpillar" dealer's facilities for servicing and rebuilding machine parts.

3 Anticipate future parts needs, then contact your dealer and let him help. But *don't* buy or order parts you don't actually need.

Caterpillar Tractor Co. will do everything possible to maintain every "Caterpillar" machine in the field, to provide new machines as fast as possible, and to allocate them as fairly as possible.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

CATERPILLAR

REG. U. S. PAT. OFF.

DIESEL ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

Obtain this Literature Free of Charge!

Write directly to the manufacturers, or use the coupon on page 23

Advisory Service For Civil Defense

446 General Electric has planned a civil-defense communication advisory service for cities, counties, towns, and villages. Available for civil-defense officials is its G-E communications brochure. For your copy, write to the firm's Section 1041, Electronics Park, Syracuse, N. Y. G-E reports that its communication specialists trained at Electronics Park can help you make use of the 2-way radio systems. Free of charge, they will analyze your area's existing communications, survey its emergency needs, and recommend the best, most economical method of setting up a reliable network at no cost to you.

Water Valve Controls

447 The Philadelphia Gear Works, Inc., Erie Ave. and G St., Philadelphia 34, Pa., on request will send a copy of its LimiTorque Catalog L-50 which gives full details of all types of LimiTorque controls for water valves. LimiTorque fits all kinds of valves and may be actuated by any available power source—electricity, gas, water, air or steam.

For Underground Pipe Installation

448 The Greenlee pipe pusher is a quick and simple way to install underground service pipe, reports the manufacturer, the Greenlee Tool Co., 2024 Columbia Ave., Rockford, Ill. Only one man is needed for the operation which eliminates torn pavements, floors and lawns, and eliminates extensive ditching and backfilling. Information on the two models and special power pump to fit your various jobs will be furnished by the company.

Dewatering Pumps

449 Jaeger dewatering pumps are built oversize to produce full-rated volume at easier speeds and to hold more priming water. Fast, sure priming, sustained efficiency of nonstop pumping are assured with the combined double priming action and positively lubricated Jaeger patented seal. Catalog P-10 describing the equipment will be sent by The Jaeger Machine Co., 505 Dublin Ave., Columbus 16, Ohio.

Cleans Sewers In One Operation

450 The newly improved OK Champion power sewer cleaner quickly brings your sewers back to full carrying capacity and avoids costly clogging. With this equipment, your men remove roots, dirt, and other obstructions from any storm or sanitary sewer in one operation. All men work above street level. For literature, write to Champion Corp., 4716 Sheffield Ave., Hammond, Ind.

Street Lighting Equipment

451 Monotube street lighting or floodlighting poles safeguard property and people, reports the manufacturer, The Union Metal Mfg. Co., Canton 5, Ohio. Monotubes are properly engineered for any lighting need. Monotube floodlighting poles come in standard types and sizes from 20 to 100 feet. The poles are easy and simple to install and give years of service with little maintenance.

No Mosquito Immune

452 No mosquito is immune to Tossits, because this new formula gives a 100% kill of all larvae. Twenty times faster than hand spraying, the water soluble capsules are easy to use and spread rapidly. For further information, write to Sentco, Inc. (formerly Southern Entomological Co.), 2400 Tamarind Ave., West Palm Beach, Fla.

Compact Pipe Locator

453 The Pathfinder pipe locator is a powerful precision unit which quickly and accurately locates position and depth of pipes, tees, valves, buried tools. It is manufactured by the Pathfinder Co., 1726 Beverly Drive, Pasadena 7, Calif., which has a trade-in plan available and provides a life-time guarantee.

Protective Fences

454 Extra protective advantages of the Realock fence for guarding property are that all fittings, hinges, and locking devices have bolts on the inside, secure from tampering. Heavily galvanized by a special process, this equipment is weather-resistant, extra strong, and durable. Additional information will be furnished by The Colorado Fuel and Iron Corp., Continental Oil Bldg., Denver 2, Colo.

Parking Problems?

455 If so, contact the Karpark Corp., Cincinnati 6, Ohio, for information on its Karpark automatics, which have helped many cities to solve their parking problem. The device features precise timing, gives dependable service, and is easy to operate and maintain.

These Check Valves Seat Without Slam

456 Rensselaer check valves solve serious slam trouble or pump shut down. They are simple in construction and head loss is comparatively low. Their lever-and-adjustable-spring construction eliminates slam by seating the gate at the same time the water column in discharge line comes to rest. These valves are used on lines that pump water, oil, gasoline. For full details, write to the Rensselaer Valve Co., Troy, N. Y., asking for Catalog H.

Traffic Controllers

457 Interchangeable parts are featured in the traffic controllers made by the Eagle Signal Corp. of Moline, Ill. Signal contacts and cams are interchangeable. Other features about the controllers are dependable, rotary-action switching mechanism, positive cam-shaft signal actuation and jack-connected relays. The firm has prepared several bulletins on its various models.

Fire Hydrants Have Protective Valve Faces

458 Ludlow fire hydrants have protective valve faces, will not flood or freeze, and are easy to repair and lengthen. Manufactured by The Ludlow Valve Mfg. Co., Inc., Troy, N. Y., they are rugged and of simple construction.

Elevated Tank Repair

459 If you would like to know what to do when your water tower needs to be repainted or to have seams welded and rivets reinforced, write for the booklet issued by the Dixie Tank and Bridge Co., 3523 Lamar Ave., Memphis 1, Tenn.

40-hp Air-Raid Siren Tested in Pittsburgh

460 A 40-hp electric air-raid siren was tested before Civil Defense Authorities of Allegheny County, Pittsburgh, Pa., on April 7th. The Pittsburgh *Sun-Telegraph* called it "the granddaddy of all air-raid warning sirens." For an account of the test, write H. O. R. Co., Inc., 40 Broadway, Staten Island 10, N. Y.

Tank Construction

461 Water spheres, elevated towers, and standpipes and reservoirs are made by the Hammond Iron Works, Warren, Pa., and Bristol, Pa. Full details on its equipment to help solve water problems of your municipality will be furnished by the company.

Protective Coatings For Equipment

462 Pitt Chem protective coatings guard equipment with a tough, impervious film that protects surfaces against nearly all types of industrial corrosion and contamination. Laboratory-controlled from raw materials to finished product, this coating is completely uniform and dependable, according to the manufacturer, the Pittsburgh Coke and Chemical Co., Grant Bldg., Pittsburgh 19, Pa. When writing for the new booklet, *Control Corrosion Through Pitt Chem Protective Coatings*, address your inquiry to the firm's Protective Coatings Division.

Centrifugal Pumps For General Use

463 A new Peerless Pump bulletin has been published by the Peerless Pump Division, Food Machinery and Chemical Corp., 301 West Ave. 26, Los Angeles 31, Calif. Bulletin B-2300 describes the Fluidyne pumps which are of the horizontal, end-suction centrifugal type. The Peerless Type PE is a close-coupled, electric, motor-driven pump and the Type PB, a bracket-mounted pump for driving through a flexible coupling, of V-belt, or flat-belt pulley. Fluidyne pumps may be installed and will operate in any position—vertical, horizontal, or intermediate angle

Small Gas Engines

464 Power for portable equipment is furnished by the Clinton Machine Co., Maquoketa, Iowa, which reports that Series 300-C and Series VS-300-B are exceptionally cool-running engines with superior governing and idling characteristics. Series 300-C s horsepower is from 7/10 to 1-3/10, bore and stroke, 2 by 1½ and displacement, 4.71 cubic inch. The horsepower rating of Series VS-300-B is .7 to 1.4, bore and stroke, 2 by 1½ and compression ratio, 5.4. Complete information will be sent by the company.

Cushioned Valves For Water Works

465 Golden-Anderson cu-hioned valves for municipal water-works systems prevent hammer or shock. The cushioned altitude valve for automatic water-level control is described in Bulletin W-4, and the cu-hioned relief valve to remove surge and hammer, in Bulletin W-2. For copies of this and Bulletin W-1, which discusses the cushioned swing check valve for automatic operation with pump, write to the Golden Anderson Valve Specialty Co., 2093 Keenan Bldg., Pittsburgh 22, Pa.

Reflectorized Traffic Signs

466 You can read embossed, reflectorized traffic signs clearly day or night, and their service records assure you that they will give you a long useful life. For a catalog on these embossed traffic signs, write to the Catophote Corp., Toledo, Ohio.

Give Your Pumps Standby Power Source

467 Johnson combination drives provide continuous water supply. Its right-angle gear drive insures 24-hour operation of pumps in any emergency, and its reserve power will transmit additional power to meet emergency requirements. The machine is available in a number of sizes, types, and ratios to meet varied application. Full details will be supplied by the Johnson Gear and Mfg. Co., 8th and Parker Sts., Berkeley 10, Calif.

Traffic Signs

468 Official traffic signs, conforming to state highway department requirements and the U. S. Manual of Public Roads, are made by Lyle Signs, Inc., 2720 University Ave., S.E., Minneapolis, Minn. The manufacturer has service records showing that its product, plain or reflectorized, is noted for quality, service, and economy. Write for descriptive literature.

Centrifugal Pump Primers

469 Apco-V-Apco primers for centrifugal pumps are made by the Valve and Primer Corp., 356 West Huron St., Chicago 10, Ill. The firm supplies automatic power or tank primers, single or duplex units, dual drive with gasoline engine. Air release valves for venting air or gases may be obtained in 17 types.

For Deteriorating Dams

470 Dams which are deteriorating can be restored to years of further usefulness when Gunite concrete is applied. The Pressure Concrete Co., 193 Emmett St., Newark 5, N. J., on request will send a copy of its 48-page Gunite booklet. Its engineers are available for inspecting your dams and giving repair-costs estimates.

(Please turn to page 34 for more Literature)

WHEN IT COMES TO CIVIL DEFENSE AND RADIATION DETECTION

Detectron GEIGER COUNTERS are outstanding!

MORE VALUE for LESS MONEY

Detectron Geiger Counters are used by the Atomic Energy Commission, U. S. Bureau of Mines, many state universities and other nuclear research laboratories, North American Aviation and hundreds of large and small defense plants. Approved for use where maximum efficiency is required. Widely accepted, the low priced DETECTRON DG-2 GEIGER COUNTER covers an expansive range of industrial applications from prospecting to civil defense. Write today for illustrated brochure and details—see why the DG-2 is the instrument of choice for many of America's leading scientists.

DETECTRON MODEL "303"

BOX AND VALVE DETECTOR

The Detectron Model "303" is a compact, well-balanced instrument for detecting valves, covers, buffalo boxes, lost tools and any other buried metal object. The "303" is particularly valuable in areas where snow often covers valves.

Simple to operate, the "303" will detect objects through asphalt, concrete, earth, brick and fresh water, in addition to snow and ice.

"505" PIPE DETECTORS

1st

with a METAL CASE
with SHIELDED LOOPS
with the 'SURE-GRIP' HANDLE
with a LIFETIME GUARANTEE

The Detectron line, although widely copied, has never been equalled or surpassed! Unlike others, the DETECTRON "505" Pipe Detectors are original creations developed in their entirety by electronic engineers with many years of experience in the building and maintenance of underground detection equipment.
The DETECTRON "505" is an instrument of many users. Model "505" locates, traces and centers pipes and cables with speed and accuracy—small, compact, lightweight—with HEAVY-DUTY PERFORMANCE. It is so very versatile that it is being listed as essential requirement by many municipalities, public utilities and excavating contractors.
DETECTRON LEAK DETECTOR may be combined with the "505" for even greater field use in determining the location of unknown or hidden pipes and also finding possible leaks.

Eastern Representative
HATHAWAY SPECIALTIES CO., BRADFORD, R. I.

Southern Representative
GEORGE L. CURRY, 5012 AIRLINE DR., HOUSTON, TEX.

THE Detectron CO.

Dept. S-R, 5631 Cahuenga Blvd. North Hollywood, Calif.

Suppliers of Certified Precision Radiation Instruments—Backed by 46 years of Electronic Research and Manufacturing

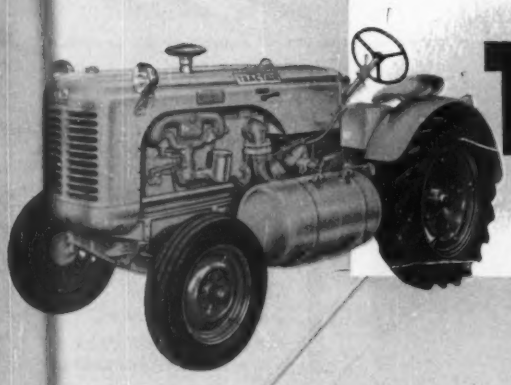
LE ROI

Le Roi gives you more for your MONEY!

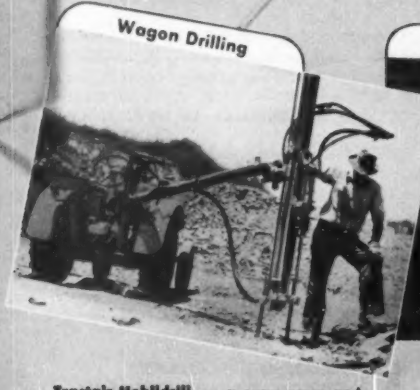
more versatility

more profits

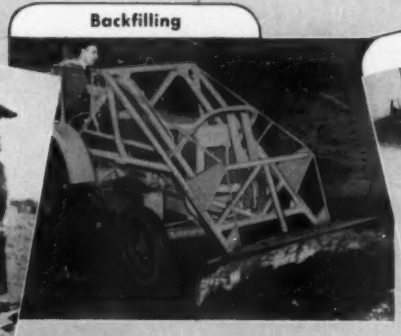
Combination bucket and crane boom. Crane boom folds back out of way when not in use. Bucket holds 10½ cu. ft. — lift capacity 1000 lbs. Crane lift capacity 800 lbs.



TRACTAIR



Tractair Mobildrill — a compressor and wagon drill in a single, self-contained, self-propelled unit. Universal mounting and swinging boom permits drilling at any angle. Drilling is easier and faster thanks to Le Roi-CLEVELAND air feed.



Loader with backfill blade in place of bucket. Width 6', mold board height 2'8", maximum lift above ground 1'4".

Trac-Jac consists of a Le Roi-CLEVELAND air-feed sinker drill mounted on Tractair. Feed and drilling controls are within easy reach of the operator. The mobility of this unit makes it ideal for mud-jacking and many other applications.

—Money-saving Handy Man

Combines air power and horsepower to give you greater utility for lower costs

HERE'S air power — 105 cfm — that really gets around! Good traction, low center of gravity, and Tractair's 35-hp engine give you outstanding mobility — self-propelled mobility that doesn't tie up trucks and men; mobility that saves you time and money.

That's why Le Roi Tractair can take air power anywhere any time. That's why you can make more use of work-saving Le Roi-CLEVELAND air tools to cut your costs further.

Just add a front-end loader (with its 8 quickly interchangeable accessories) and you multiply Tractair's usefulness. Not only will it handle breaking, clay digging, drilling, and tamping; but also loading, lifting, backfilling, snow-plowing, etc.

Yes, Tractair is a money-saving handy man. Watch one work — you'll see why. Make arrangements with your nearby Le Roi distributor. A new Tractair loader bulletin and job-data sheets are available. They show how Tractair saved money for others. Just write for them.

T-54

LE ROI COMPANY

MILWAUKEE 14, WISCONSIN

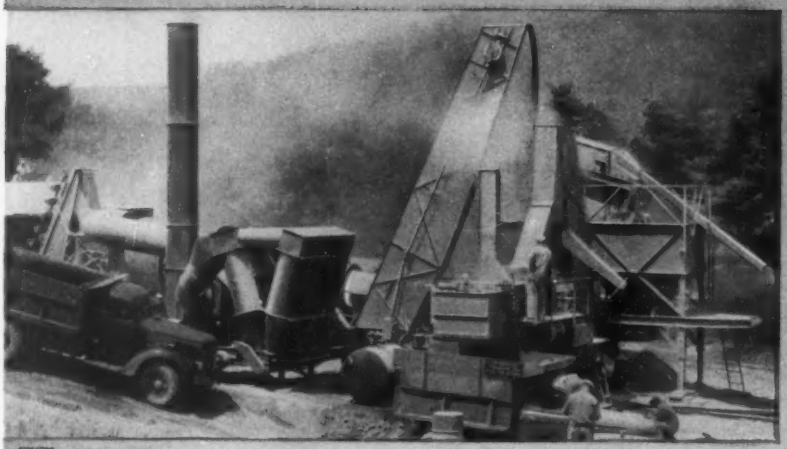
PLANTS: MILWAUKEE • CLEVELAND • GREENWICH, OHIO

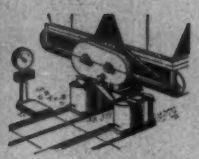
Distributors in all these principal cities

ALABAMA: Birmingham, Mobile — ARIZONA: Phoenix — ARKANSAS: Little Rock — CALIFORNIA: Bakersfield, Long Beach, Los Angeles, San Francisco—COLORADO: Denver, Grand Junction — CONNECTICUT: Hartford — FLORIDA: Jacksonville, Miami, Tampa — GEORGIA: Decatur—IDAHO: Boise, Idaho Falls, Twin Falls, Wallace—ILLINOIS: Chicago —INDIANA: Indianapolis—IOWA: Cedar Rapids, Waterloo—KANSAS: Great Bend, Kansas City, Pratt, Wichita — KENTUCKY: Lexington, Louisville — LOUISIANA: New Orleans, Shreveport — MAINE: Augusta — MARYLAND: Baltimore, Hyattsville — MASSACHUSETTS: Hyde Park, Newton Highlands — MICHIGAN: Detroit, Grand Rapids — MINNESOTA: Duluth, Minneapolis — MISSISSIPPI: Jackson — MISSOURI: Joplin, St. Louis — MONTANA: Billings, Great Falls — NEBRASKA: Omaha — NEW HAMPSHIRE: Manchester — NEW JERSEY: Cranford, Kingston — NEW MEXICO: Albuquerque — NEW YORK: Albany, Binghamton, Buffalo, Long Island City, Newburgh, Rochester, Saugerties, Syracuse, Woodside (L.I.) — NORTH CAROLINA: Charlotte — NORTH DAKOTA: Fargo — OHIO: Cincinnati, Cleveland, Columbus, Dayton, Toledo — OKLAHOMA: Oklahoma City — OREGON: Portland — PENNSYLVANIA: Bethlehem, Harrisburg, Philadelphia, Pittsburgh — RHODE ISLAND: Providence — SOUTH CAROLINA: Columbia — SOUTH DAKOTA: Sioux Falls — TENNESSEE: Chattanooga, Knoxville, Memphis, Nashville — TEXAS: Dallas, El Paso, Houston, Lubbock, San Antonio — UTAH: Salt Lake City — VIRGINIA: Richmond, Roanoke — WASHINGTON: Seattle, Spokane — WEST VIRGINIA: Clarksburg, South Charleston — WISCONSIN: Milwaukee — WYOMING: Casper

Barber-

BITUMINOUS MIXING PLANTS





Mix sampling and calibration facilities provided on B-G High Capacity Plants for mixing highest type 3-and-4 aggregate mixes. Convenient, accurate calibration by weight.

ACCURATE MIX CALIBRATION...BY WEIGHT ON A CONTINUOUS FLOW BASIS CONVENIENT FOR OPERATOR AND INSPECTOR!

Barber-Greene Bituminous Mixing Plants provide many control features not offered in any other type of plant. Here are a few of the provisions that help accomplish these advantages:

AGGREGATE GATES, when set to feed the correct amount of aggregate from each bin, may be locked in position.

OVERFLOW SPOUTS are provided on each aggregate bin for balancing aggregate by rejecting any excess of any size in the bins.

AUTOMATIC CUT-OUT stops plant operation in case of deficiency of any aggregate size.

FINES FEEDER for introducing mineral filler in correct proportion to total mix.

GRADATION UNIT SCREEN and bin design permit separation of aggregate into 2, 3 or 4 fractions to meet any specifications.

DUST COLLECTOR for use with any plant when it is necessary to conserve desirable fines in aggregate.

BY-PASS GATE for convenient calibration, inspection and sampling. Aggregate in each bin may be individually sampled without interference to plant operation and production.

BY-PASS GATE ahead of pug mill. Composite aggregate sample may be obtained for convenient testing without interfering with operation and production.

ACCURATE, POSITIVE-DISPLACEMENT bitumen metering pump with interlocked drive to aggregate feeders to guarantee unvarying proportion of bitumen to aggregate.

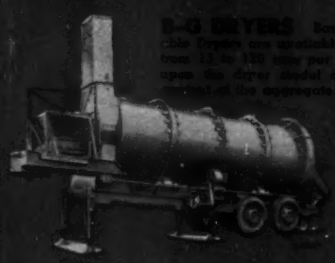
see your B-G distributor . . .

Greene

TO MEET ALL MIX SPECIFICATIONS

FOR THE CAPACITY YOU NEED...
THE MIXES YOU WANT TO MAKE...

SELECT FROM
4 BASIC B-G UNITS



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B-G BITUMINOUS PLANT ACCESSORIES

• 1, 2 or 3-bin hoppers • Reciprocating feeders • Feeder housing or charging hopper • Fines feeder with screw conveyor • Charging and discharging belt conveyors • Cold elevators • Bucket Loaders for Travel Plant service

send for authoritative B-G information

Complete files of performance data and explanatory literature on the size and type of Barber-Greene Mixing Plant which interests you are available at your request. As a preliminary to thorough discussion of your needs with Barber-Greene experts, send for this information. When writing, specify type of mixes, plant output, etc.

OR WRITE BARBER-GREENE COMPANY, AURORA, ILLINOIS, U. S. A.

N.J. FIRE DEPT. fights fires fast with Scott Air-Pak
A RECENT RESIDENCE FIRE IN NAVESINK, N.J. TURNED OUT TO BE A DIFFICULT ONE. THE SOURCE OF THE FIRE IS WELL HIDDEN...
FIREMEN WEARING SCOTT AIR-PAKS LOCATE SOURCE OF FIRE IN CLOSET UNDER STAIRS. QUANTITIES OF BURNING FEATHERS, PAINT, SILK, WOOL, ETC. CREATE DANGEROUS TOXIC CONDITION....BUT FIRE IS PROMPTLY DEALT WITH
Says Chief Posten:
"Of course this kind of a job could not have been accomplished without Scott Air-Paks and fog."
CHIEF

Here's how Scott Air-Pak Safety Breathing Equipment helps you fight fires SAFER and FASTER

- Safely protects you from all toxic fumes.
- Inspires confidence (ample supply of cool fresh *air* — not oxygen).
- Immediate building entry regardless of smoke makes possible attacking fire at source.
- Lungs and eyes protected, firemen work efficiently and comfortably.

Have You Seen the NEW Scott DEMAND OXYGEN Inhalator?

ESTABLISHED IN 1932 — Scott — FOR SAFETY—FOR SERVICE

See your Scott Distributor for FREE DEMONSTRATION or write us for full information — today!

SAFETY EQUIPMENT DIVISION

SCOTT AVIATION CORP.

191 ERIE ST. LANCASTER, N. Y.

Canada: Safety Supply Co., *Branches in all Principal Cities*

Export: Southern Oxygen Co., 157 Chambers St., N. Y. 7, N. Y.

More Literature

Write directly to the manufacturers, or use coupon on page 23

Insecticidal Fog Applicator

471 Compact and portable is the self-powered and one-man-operated Todd insecticidal fog applicator which discharges insecticides in a clean fog that clings to every object. Eliminate flies, mosquitoes, and other insects with this machine which is made by the Todd Shipyards Corp., 81-16 45th Ave., Elmhurst, Queens, N. Y. When writing for illustrated folder on this machine called Tifa, address your letter to the Combustion Equipment Division.

Combination Searchlight And Floodlight

472 The Portable Light Co., Inc., 216 William St., New York 7, N. Y., manufactures a combination searchlight and floodlight for emergencies. It can be employed for property protection, power plants, public buildings and for use by police and fire departments. Full details are described in Catalog No. 451.

Street Line Marker

473 Sharp lines are quickly painted on concrete, black top and brick surfaces by the Mark-Rite line marker. The Econo-Liner power spray model is a one-man operation and can be used for spray stenciling on streets, painting curbs and fire hydrants. For further information, write to Universal Mfg. and Sales Co., 8716 Santa Fe Ave., South Gate, Calif.

Pipe Puller And Pusher

474 The Trojan pipe puller and pusher cuts costs and saves time, states The Trojan Mfg. Co., 1112 Race Drive, Troy, Ohio. It simplifies installation or renewing water and gas service lines under pavement. Model A is for ½- to 1-inch pipe and weighs 65 pounds. Model B will push up to 2-inch pipe without additional clamps, or wedges.

First Mechanical Joint Tapping Sleeve and Valve

475 The A. P. Smith Mfg. Co., East Orange, N. J., has made the first mechanical joint tapping sleeve and valve which eliminates melting, pouring, and caulking. Quick and simple installations can be made in wet trenches in all kinds of weather. The stuffing-box type joints need no cutting or scarfing of rubber gaskets on the job.

Rubber Pipe Joint For Bell-and-Spigot Pipe

476 The Smith-Blair water-lock ring packs a bell-and-spigot cast iron pipe joint. It is self-adjusting to oversize bells, and its sealing action automatically increases when pressure exists in the line. Made of molded rubber, it is non-porous. No cutting or fitting are needed. Available in sizes of from 4 to 48 inches, it is hydrostatically designed to hold 40 to 60-pound pressure without compound. Complete details will be furnished by Smith-Blair, Inc., S. San Francisco, Calif.

Improved Fire Apparatus

477 The Seagrave Corp., Columbus, Ohio, and Bickle-Seagrave, Ltd., Woodstock, Ont., manufactures the Seagrave centrifugal pump which is placed deep in the chassis of fire trucks. This gives a lower center of gravity, good increase in safety, and eliminates vibration by providing a straight driving line from the engine to the pump.

Steel Piers For Bathing Beaches

478 The Standard Steel Products Mfg. Co., 2836 S. 16th St., Milwaukee 15, Wis., produces all-steel piers for municipal bathing beaches which are easy to assemble. They are sectional and available with ladders, benches, diving board, railing, steps, and guard tower. For further information, write the company.

(See p. 177 for more Bulletins)

Progressive Civic Officials are Getting the Facts About...

Hotpoint's Municipal Plan of Food-Waste Disposal

Modern-minded municipal officials are investigating the Hotpoint Municipal Plan of Food-Waste Disposal. Highly satisfactory reports from numerous communities, which have dispensed with the "can and wagon" garbage collection system, prove the values in the Hotpoint plan.

Study these advantages made possible by the Hotpoint Disposall® Food-Waste Disposer. If you would like to provide your community with a modern, sanitary, economical method of disposing of food-waste before it becomes garbage, Hotpoint will gladly present the Hotpoint Municipal Plan—based on experience and written specifically for municipal officials.

- *A convenient, new and modern food-waste removal system.*
- *Health protection to the members of all families.*
- *Fly and rat pest reduction.*
- *Garbage collection cost reduction.*
- *More digestion gas for use and sale.*
- *Elimination of food-waste before it becomes garbage.*
- *Elimination of alley garbage can.*
- *Elimination of garbage collection problems.*
- *Elimination of garbage odors.*
- *True sanitation for your town.*

And—it saves you money!

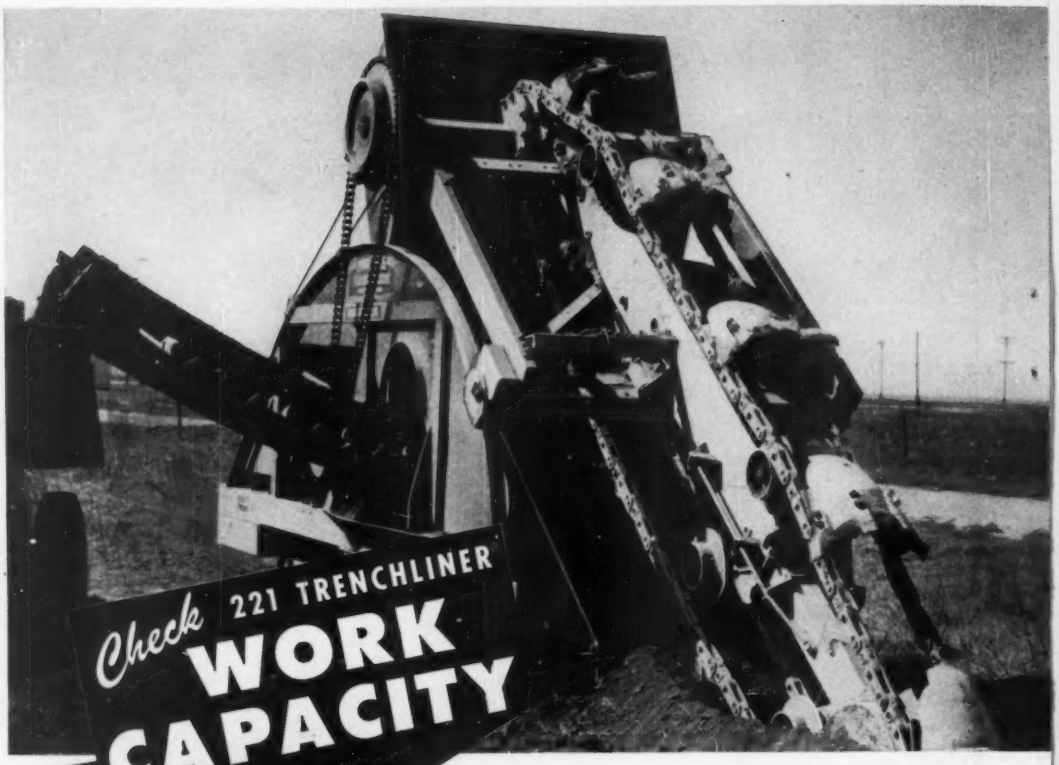
Write to Hotpoint Disposall Dept., 5600 West Taylor St., Chicago 44, Illinois, for all the facts.

The Hotpoint Disposall food-waste disposer is easy to install in any sink . . . convenient . . . safe . . . odorless and economical. Simple to operate . . . keeps kitchens, sinks and hands clean. Does not overload or clog sewer systems. Can also be used with septic tank.

Hotpoint Inc.

(A General Electric Affiliate)

5600 West Taylor Street, Chicago 44, Illinois



12 cutting widths from 16 to 36", with only 3 standard size buckets, side cutters and oversize teeth, provide a wide range of trenching widths for installing city and subdivision mains, sewers, pipelines.

Telescopic ladder-type boom locks at 18" intervals for quick depth variations up to 8½' deep.

30 digging feeds from 6½" to 13'-10" per min. assure maximum trenching efficiency at every depth, width, and in all types of soil.

Makes vertical set-ins, undercuts sidewalks, sewers, old mains, because all digging feeds, bucket line, conveyor belt and traveling speeds are fully reversible.

Cuts within 10" of curbs, poles and buildings in streets and narrow alleys. Digging boom shifts across full width of machine, digs as efficiently behind either crawler as it does in center position.

Power-shift conveyor, with reversible belt direction, shifts completely through machine in less than 1 minute. This lets the 221 Trenchliner discharge spoil right or left . . . dodge side obstructions without swerving from grade line.

Constant discharge height of 6'-4" for truck loading is maintained by arc of conveyor, regardless of position of digging boom. Arc-type conveyor also gives low-level, close-to-trench deposit.

Automatic safety clutch on excavator drive sprocket protects all machinery against shock loads.

Alloy and heat-treated steels in bucket chains keep maintenance low in toughest trenching service.

Replaceable tooth points, quickly installed, self-sharpening, get full bucket load at every "bite".

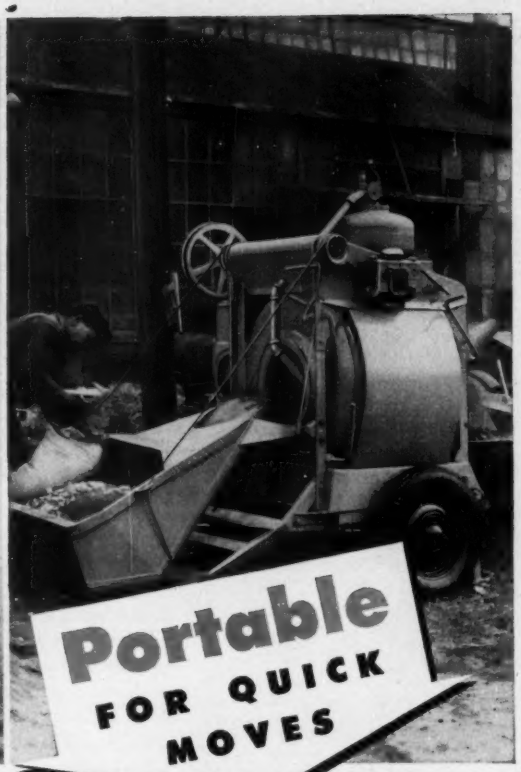
To assure maximum feet of trench per hour at lowest cost per foot on your work, get all the facts on this flexible 221 Trenchliner. See your Parsons distributor, or write us. Also: bigger sizes for trenching up to 6' wide, up to 17' deep.

PARSONS CO., Newton, Iowa
(Koehring Subsidiary)

CP145

PARSONS ... BUILT BY K ... QUALITY PRODUCT

PARSONS *Trenchliners*®



. . . 35 M. P. H. MOBILITY with KOEHRING 304 TRUCK CRANE

Combining heavy lift capacity with high-speed, rubber-tired mobility, Koehring 25-ton Truck Crane is the most efficient answer for widely-scattered lifting and material-handling jobs around town. Where work requires frequent moves over pavement and through city traffic, this mobile Truck Crane rolls along at 30 to 35 m.p.h. speeds. There's no waiting for trailer, no loading delays. Hinged booms fold back for ample travel clearance, saving more time on every job-to-job move.

Maximum 110-ft. reach, with jib, and 25-ton lift capacity on rubber gives this heavy-duty Truck Crane plenty of operating stability to handle over-size clamshell and dragline buckets on a wide work range . . . quickly converts to ¾-yd. shovel or hoe . . . also available on cruiser or crawler mounting.

Other Koehring Heavy-Duty sizes up to 79½-ton lift . . . 2½-yd. dipper capacities. See your Koehring distributor for complete facts, or write to us for catalogs.

KOEHRING COMPANY
Milwaukee 16, Wisconsin
(Subsidiaries: JOHNSON • PARSONS • KWIK-MIX)

. . . 2-WHEEL, END-DISCHARGE KWIK-MIX 6-S DANDIE®

Smooth trailing, easily spotted at pouring location, Kwik-Mix 6-S Dandie concrete mixer is available on 2 or 4 wheels. Has wide, power-raised skip, selective skip shaker . . . double mixing action. Tilted Flow-Line Discharge Chute pours full batch in 7 seconds. Optional equipment: Water pump, Batchmeter, auxiliary hoist, distribution spout. Other Kwik-Mix sizes: 3½-S, 11-S and 16-S Dandies.

Haul with labor-saving MOTO-BUG

. . . Kwik-Mix power wheelborrow has 10 cu. ft. hopper, interchangeable 1200-lb. flatbed, scraper blade and fork lift. Ask your Kwik-Mix distributor about its labor-saving advantages, or send for catalog.

KWIK-MIX COMPANY
Port Washington, Wisconsin
(Koehring Subsidiary)

STEPS TOWARDS A GARBAGE-FREE AMERICA...

1935-1939

First steps—prewar. Fifteen years ago General Electric began pioneering in electric garbage disposal by means of food-waste grinders. Even before the war, approximately 30,000 such G-E-made appliances had been installed . . . and there were already signs of awakening *community* interest in this new, more efficient, more hygienic way of getting rid of garbage. In 1939, for instance, 179 G-E food-waste disposers were installed in the Ford Foundation at Dearborn, Michigan. So durable and dependable have these units proved, as is shown by service records, that their average maintenance cost, over a 10-year period, was only 10¢ per unit per year.

1950

Big steps last year. Last year—with over a quarter of a million G-E Disposalls® in daily use throughout America—more and more progressive-minded civic leaders showed their *practical* awareness of this growing trend, by applying the simple G-E system to the garbage disposal problems of *whole cities and communities.* One remarkable instance of such municipal action took place in Jasper, Indiana. There, early in 1950, the City Council voted to suspend all municipal garbage collection after Aug. 1, and to replace garbage cans and collection trucks by food-waste disposers in homes throughout the city. The G-E Disposall, known for its proved dependability, was chosen for this job.

1951-195?

Great strides ahead! What has already been done is only a beginning. Such multiple installations of the G-E Disposall, for instance, as are now being civically sponsored in Mount Dora, Fla., and Herrin, Ill., will soon be serving as blueprints for similar projects in scores of other cities.

If you are in any way concerned with civic planning and sewage treatment, *now* is the time to consider how such an undertaking might benefit *your* community . . . in convenience, economy and better public health. General Electric's long and unequaled experience in automatic garbage disposal is always at your service.

Let us answer your questions and send you printed information—or even a personal consultant. Write General Electric Company, Dept. (A5), Bridgeport 2, Connecticut.

G-E DISPOSALL CONVERTS FOOD WASTE TO SEWAGE—ELIMINATES "GARBAGE"

You can put your confidence in—

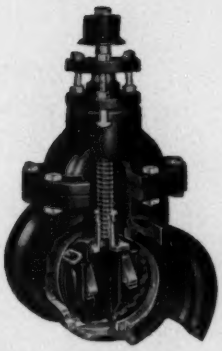
GENERAL ELECTRIC

IOWA products

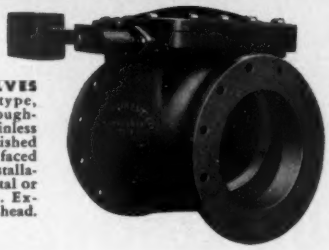
meet your most exacting specification

Superiority of Design, Workmanship, and Materials Assures Efficient Trouble Free Operation . . .

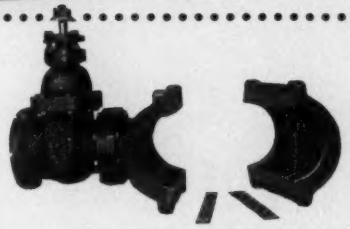
In every job



IOWA GATE VALVES—Simple, rugged construction, fully bronze mounted. Parallel seat, double disc type with independent solid bronze wedges and stem nut. Trouble free service assured.

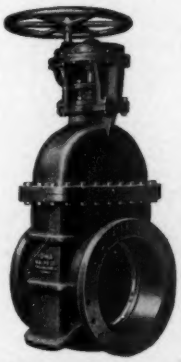


IOWA CHECK VALVES—Balanced swing type, bronze trimmed throughout. Equipped with stainless steel hinge pin. Furnished with rubber or leather faced disc if desired. For installation in either horizontal or vertical pipe lines. Extremely low loss of head.



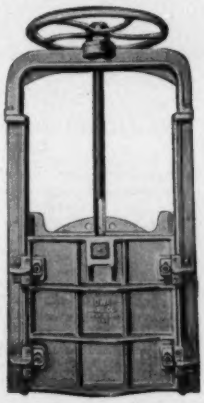
IOWA TAPPING SLEEVES and VALVES—Sturdily built, easy to assemble and center on pipe. All bolted type with lead strips for tight sleeve connections. Extra long body sleeves with heavy flanges amply protect the cut. All sizes available.

IOWA FIRE HYDRANTS—Latest Corey type conforming to AWWA specifications. Will not geyser when standpipe is broken. Unique design provides unrestricted water flow with extreme low loss of head.



IOWA SQUARE BOTTOM VALVES—Specially designed for throttling service in filter wash and pump discharge lines. Square bottom features can be built into gate valves of any pressure ratings.

IOWA HYDRAULIC VALVES—Superiority of design matched with sturdy construction meets severe, continuous filter service requirements. Available with either iron, brass lined or brass tubing cylinders.

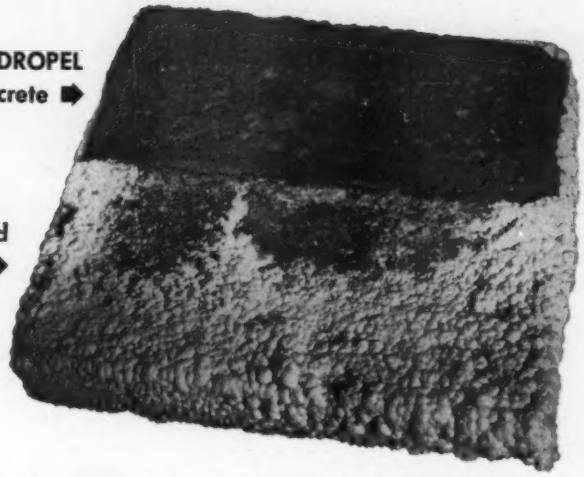


IOWA SLUICE GATES—Heavy cast iron construction, fully bronze mounted. Provided with solid bronze adjustable wedges. Suitable for seating and unseating pressures. Wide range of sizes.

Write today for descriptive literature.

IOWA VALVE COMPANY

201-299 N. Talman Ave., Chicago 80, Ill. • *A Subsidiary of James B. Clow & Sons*



This block—one-half HYDROPEL Concrete and the other half air-entrained—sat in a shallow layer of saturated salt solution until all liquid evaporated. The solution was sucked through the air-entrained concrete by capillarity, leaving salt crystals on the surface. Note that the HYDROPEL Concrete absorbed almost none of the salt solution—free from destructive salt crystallization.

Will HYDROPEL® Waterproofing Admix Improve YOUR Concrete?

If YOUR concrete suffers from stresses induced by alkali or salt absorption, freeze-thaw action, moisture changes, or just plain abrasive wear—HYDROPEL Concrete will give you much longer life, at low cost. (We make no claim against strong acids.)

HYDROPEL is a unique type of liquid asphalt emulsion, added as the concrete is mixed. It gives you MANY benefits. Why not try HYDROPEL on one of your TOUGH spots? Here are a few of the many problems in concrete that HYDROPEL has solved.

Case History No. 1

In a Northeastern state with severe climate, a new concrete highway soon scaled badly—and bridge decks showed many cracks. Sections of the same highway, laid with HYDROPEL Concrete, remained perfect—no scaling, no cracking. HYDROPEL repaid its small added cost, many times over.

Case History No. 2

A group of new homes in Lima, Ohio, were built with the first floor well below grade—with walls and floors of concrete. In one house, HYDROPEL Concrete was used as a test. Torrential rains came. Where ordinary concrete was used, the houses had to be pumped out. The "HYDROPEL house" was the only one that stayed dry. Tests of all well-known admixtures proved that HYDROPEL Concrete resists capillary moisture approximately FIVE TIMES better than any other admix.

Case History No. 3

A Connecticut city was plagued with early disintegration of concrete in their curbs, gutters and sidewalks—from freeze-thaw action and de-icing salts. HYDROPEL Concrete was ordered used in all these locations. Inspection, after several years' use, showed the HYDROPEL Concrete to be in perfect condition.

Case History No. 4

A chemical plant, making chlorine and caustic from brine solutions, had very short life of their concrete electrolytic cells. About three years ago, they made new cells of HYDROPEL Concrete. This plant, and others like it, report that HYDROPEL Concrete cells last twice as long with double the amperage formerly used—a gain of 400% in effective cell life. In resisting alkali salts, HYDROPEL Concrete has given large savings, in a variety of applications.

Are YOU troubled with concrete that does not last?
Try HYDROPEL Concrete—it will amaze you.

Ask for our BITUMULS BOOKLETS. They are factual, illustrated, and helpful—a valuable addition to your engineering library.

- Bitumuls Penetration Macadam . . ☐
- Bitumuls for Maintenance . . . . ☐
- Bitumuls Sand-Mix . . . . . ☐
- Bitumuls Handbook . . . . . ☐
- Hydropel—Admix for concrete . . ☐
- Tennis Courts—Laykold & Grasstex . ☐
- Fibrecoat—roof and metal coating . ☐

In the East

AMERICAN BITUMULS COMPANY
200 BUSH STREET · SAN FRANCISCO 4, CALIF.
Washington 6, D. C. · Baltimore 3, Md. · Perth Amboy, N. J.
Columbus 15, O. · St. Louis 17, Mo. · Baton Rouge 2, La.
E. Providence 14, R. I. · San Juan 23, P. R. · Mobile, Ala.

In the West

STANCAL ASPHALT & BITUMULS COMPANY
200 BUSH STREET · SAN FRANCISCO 4, CALIF.
Los Angeles, Calif. · Oakland 1, Calif.
Portland 4, Ore. · Seattle, Wash. · Tucson, Ariz.

120 NORDBERG *Radial* ENGINES

in the WORLD'S LARGEST INTERNAL COMBUSTION ENGINE PLANT . . .

NORDBERG *Gas Burning Radials*
at Alcoa's Point Comfort Reduction Works provide nearly 200,000 Horsepower *24 HOURS A DAY—365 DAYS A YEAR* to meet the full capacity demand!

120 of these Nordberg two-cycle Gas Burning Radial Engine Generating Units have been installed in the Aluminum Company of America's Point Comfort (Texas) Reduction Works to provide electric generating capacity to produce over 100,000,000 pounds of aluminum per year.

This tremendous installation exemplifies the way in which Nordberg Diesel Engines, in sizes from 10 to 9600 hp., are used to provide dependable, economical power for stationary and marine requirements all over the world.

IMPORTANT FEATURES OF NORDBERG *Radial* ENGINES

- LOWER INVESTMENT COST
- LOWER INSTALLATION COST
- LOWER OPERATING COST
- LOWER MAINTENANCE COST
- LESS SPACE REQUIRED
- AVAILABLE THREE WAYS . . . as oil burning Diesels, as natural gas engines, or as Duafuel engines.

Applicable for industrial and municipal power plants and central stations or wherever compact, economical, dependable power is required. For full details covering Nordberg Radials, send for BULLETIN 172.

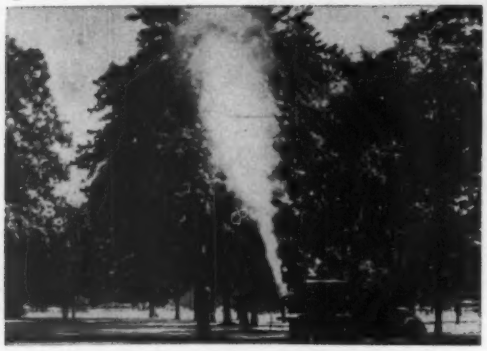
NORDBERG MFG. CO.
Milwaukee 7, Wis.

P551

BUSCH-SULZER

NORDBERG
DIESEL ENGINES

GET FAST, THOROUGH COVERAGE of large areas with a John BEAN ROTOMIST!



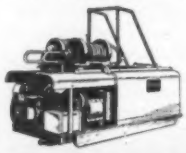
Better pest control for shade trees and parks because of Rotomist Controlled Performance

Rotomist will do a better job for you because it delivers atomized spray concentrate of the correct micron size, but at relatively low air velocities so there is no damage to trees. Rotomist accomplishes this by pre-atomization with a powerful auxiliary blower in a 240-mile-per-hour air stream. Then the controlled mist is delivered to the main air stream of lower velocity. With Rotomist you get maximum protection for the trees plus efficient use of spray material as the spray droplets get on the foliage but are not large enough to cause wasteful run-off.

Rotomist can apply dry dust, wet dust or concentrates and get thorough coverage over large area and into the tops of tall shade trees.

Easy, precise operation is made possible by Rotomist's hydraulic controls. Write for a free Rotomist folder for complete information.

• RANGER is your all-purpose sprayer



You'll find dozens of uses for a John Bean Ranger, an all-purpose municipal sprayer for weed, insect, brush and pest control. High-pressure hose on two drums makes it easy to spray in hard-to-get-at places.

John fmc **BEAN**
LANSING 4 MICHIGAN
DIVISION OF FOOD MACHINERY & CHEMICAL CORP.

JOHN BEAN
Department AC-5, Lansing 4, Michigan
Please send me information on
☐ ROTOMIST ☐ RANGER

Name_____

Address_____

City_____ State_____

CUT DIGGING COSTS with the new Sherman Power Digger

Patented, actuated bucket gives you selective digging action, better loading, greater versatility.

All-hydraulic action—made possible by heavy-duty hydraulic cylinders—assures efficient performance.

SPECIFICATIONS

Shovel reach below ground surface	8 feet
Digger reach behind tractor	10 feet
Swinging arc	140°
Trench width, standard digging shovel, single cut	18 inches
Digging shovel capacity	3.5 cu. feet
Loading shovel capacity	.5 cu. feet
Loading clearance, digging shovel, loaded	7 feet
Loading clearance, loading shovel	10 feet

Standard tractor mounting gives unmatched maneuverability and transportability.

•

Digs ditches, trenches, footings, culverts, basements and other excavations.

•

Handles roots, rocks, hard clay and oiled road surfaces.

Works well behind the tractor at any angle.

•

Actuated bucket raises high enough to load standard dump truck.

WRITE FOR LITERATURE TODAY!

Designed, Engineered and Manufactured Jointly By
SHERMAN PRODUCTS, INC. • Royal Oak, Michigan
WAIN-ROY CORP. • Hubbardston, Massachusetts
Sold Exclusively By SHERMAN PRODUCTS, INC.

SHERMAN PRODUCTS, INC., ROYAL OAK, MICH.

Widespread installations of Sanistand fixture prove overwhelming acceptance of this new urinal for women

ALL over the country, more and more maintenance managers of buildings in which public rest rooms for women are maintained are ordering Sanistand fixtures for permanent installations. Department stores, theatres, stadiums, race tracks, schools, colleges, bus and railway terminals, restaurants, hotels, factories, hospitals, churches, clubs, service stations, night clubs and office buildings—are just a few of the many places where Sanistands have been installed recently. Definite proof that the enthusiasm expressed earlier when the Sanistand fixture was first introduced has been confirmed by usage in all sorts of installations.

This new Sanistand fixture is constructed throughout of non-absorbent, easy to clean, genuine vitreous china. It can be installed in a regular wash room compartment and can usually replace a water closet—especially important when modernization work is being considered. The Sanistand fixture is available in a variety of attractive American-Standard colors and is adaptable to either hand or foot operated flush valve.

HERE'S WHAT BUILDING MANAGERS ARE SAYING ABOUT THE SANISTAND FIXTURE:

Manager, Drive-In Theatre, Corpus Christi, Texas:
"The units enable the rest room to handle more than twice the number of women in the same period of time."

Manager of Theatre, Hickory, N. C.:
"Every ladies' room in the country should should have at least one Sanistand for every conventional type fixture."

Service Station, New York City:
"We heartily favor this type of unit, particularly at service stations where there is a high volume of rest room traffic."

Department Store Manager, Richmond, Va.:

"We have already definitely made up our minds to include more Sanistand fixtures in our new budget."

Building Manager, North Carolina factory:
"Should be installed in all public places."

Hotel Manager, Portland, Oregon:
"Our maintenance workers do find that the cleaning problem is easier."

For more information on the Sanistand fixture get in touch with your plumbing contractor or send in the coupon for a copy of the American-Standard booklet on rest room improvement. **American Radiator & Standard Sanitary Corporation, Dept. AC-5 Pittsburgh 30, Pa.**

AMERICAN-Standard
First in heating . . . first in plumbing

American Radiator & Standard Sanitary Corporation
Dept. AC-5, Pittsburgh 30, Pa.
Please send me, without obligation, your new Better Rest Room Guide including complete information on the Sanistand.

Name.....
Firm.....
Address.....
City.....State.....

Look for this AMERICAN-STANDARD HEATING PLUMBING *Mark of Merit*

Serving home and industry: AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILERS • RUSS HEATER • TONAWANDA IRON

DEMPSTER-DUMPSTER RUBBISH COLLECTION

What It Is-How Cities Use It To Cut Costs, Increase Cleanliness

Cities like Baltimore, Richmond, Nashville, Boston, Cincinnati, Birmingham — to name a few — are spotting big Dempster-Dumpster Containers at Schools, Hospitals, and Hotels . . . Apartment, Housing, Business and Market Areas for more efficient and sanitary collection of bulk rubbish. These containers are eliminating unsanitary trash cans, crates, boxes, rats, scattered trash, open trucks and with it making almost unbelievable savings.

Here is a brief explanation of this revolutionary method of bulk rubbish collection:

Operated by One Man

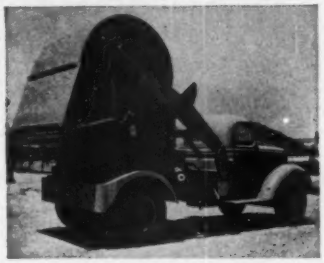
The Dempster-Dumpster System is, simply stated, one or more truck-mounted Dempster-Dumpsters, each with only one man, the driver, servicing any required number of detachable Dempster-Dumpster Containers, ranging in size up to 12 cu. yds. The Dempster-Dumpster makes scheduled calls at housing, market and business areas, hospitals, schools, etc., and picks up each pre-loaded container, hauls it to disposal area where contents are dumped automatically, then returns container to replace another pre-loaded container. This single truck - mounted Dempster - Dumpster services any number of containers, one after another.

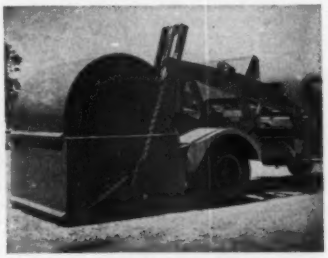
The cleanliness of the Dempster-Dumpster System is due to the completely closed steel containers. Trash and refuse cannot be scattered over streets and alleys by winds or scavengers. Dempster-Dumpster containers are fire-proof and rat-proof.

System Grows as Needed

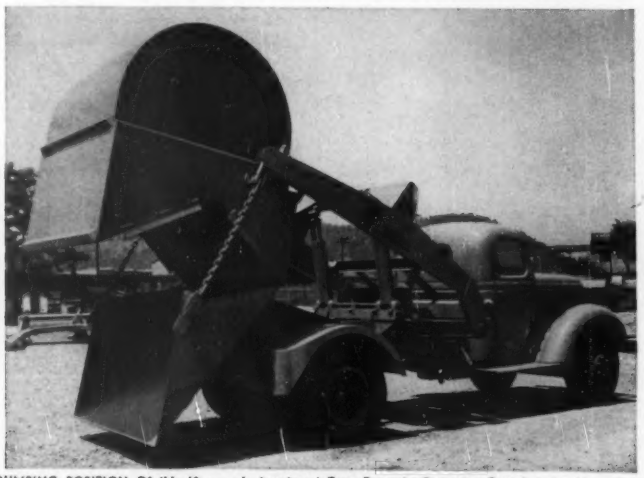
The City of Birmingham started out with one Dempster-Dumpster and 10 containers in 1938. Now Birmingham has 12 Dempster-Dumpsters servicing 204 containers. Richmond, Va., started out with two Dempster-Dumpsters and 13 containers in 1946. Today Richmond has six Dempster-Dumpsters servicing 196 containers. And so on down the line in city after city where the Dempster-Dumpster System is saving sanitation departments thousands of dollars annually. For example, when Richmond replaced the conventional open truck method of bulk rubbish collection in the business area with the Dempster-Dumpster System, it cut collection costs from $1.03 to .43 per cubic yard.

The pay-load capacity of the larger Dempster - Dumpster Containers is equal to or greater than conventional truck bodies. It is important to remember that containers are available in many different designs of every desired size. For instance, where moist or wet rubbish is a problem, a Dempster-Dumpster container is built to take care of it. And, bear in mind, regardless of the different designs or sizes of the containers you use at various points, one truck-mounted Dempster-Dumpster can service them all.





PICK UP AND HAULING OPERATIONS are shown in the two photos above. Driver backs Dempster-Dumpster up to Dempster-Dumpster Container, which has been pre-loaded by user, slips lifting chains onto lugs at each end of container, then, by hydraulic controls in the cab, lifts container into carrying position and drives to disposal area.



DUMPING POSITION Of this 10 cu. yd. Apartment Type Dempster-Dumpster Container is shown above. Its payload capacity is greater than the average conventional truck body. Container is placed in dumping position hydraulically and drop bottom section of container is lowered for dumping . . . all under complete control of driver in the cab.

The Dempster - Dumpster System triples man-hour efficiency . . . reduces truck investment, gas, oil, maintenance costs . . . improves "housekeeping" methods . . . reduces fire hazards . . . provides an easier, quicker, safer and more effective manner of handling bulk trash and refuse.

Upon request Dempster Brothers' engineers will be glad to prepare, at no cost to your city, a complete report for your particular municipal bulk rubbish collection requirements to determine the extent to which the Dempster - Dumpster System would justify its purchase and just what equipment would be required for efficient bulk rubbish disposal.

DEMPSTER DUMPSTER
TRADE MARK REG.

DEMPSTER BROTHERS
851 Dempster Bldg.
Knoxville 17, Tenn.

SIMPLICITY of AMERICAN METERS

THE DISTINGUISHING FEATURE

All water meters are sold today under approximately the same claims of quality and accuracy. How then shall a buyer choose intelligently the best meter? Price may or may not be a criterion.

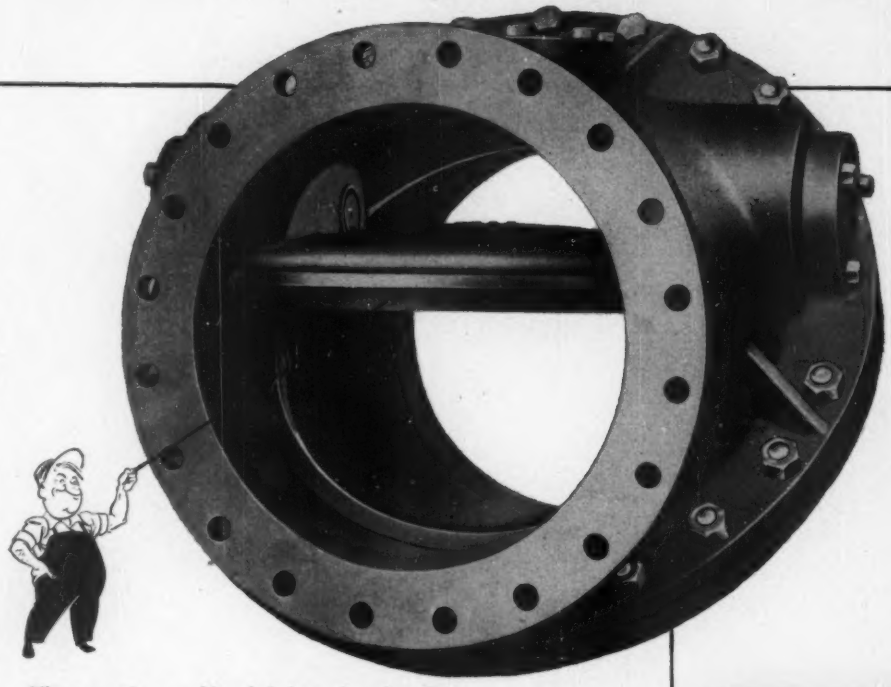
The one important variable among water meters today is simplicity of design. The meter which does its work with the fewest parts is the most efficient, the most advantageous over many years. That meter is the American.

Ask for complete data.

BUFFALO METER CO.

2902 MAIN STREET, BUFFALO 14, NEW YORK

Stop Expensive Slamming With the Cushioned Closing of CHAPMAN TILTING DISC Check Valves

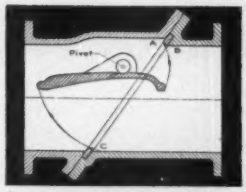


Those words — *cushioned closing* — best describe the action of this unique check valve. The tilting disc works with the stream—opens easily, closes quickly, *yet quietly.* There's no slamming — no resultant destructive stresses on the pipeline.

As a result of this smooth, *cushioned action*, maintenance costs are at a minimum and savings of from 65% to 80% in head losses can be obtained over conventional-type check valves.

Send today for the bulletin describing this unusual valve.

THE CHAPMAN VALVE MFG. CO.
INDIAN ORCHARD, MASSACHUSETTS



Cross-section of the Chapman Tilting Disc Check Valve illustrating the way that the balanced disc is supported on the pivot, with arrows showing the travel of the disc. A feature of the design is that the disc seat lifts away from the body seat when opening, and drops into contact when closing, with no sliding or wearing of the seats.

Portland, Ore., contractor reports:

Chas. T. Parker, of Parker-Schram Co., says: "On this 36" pipe line using Dresser Couplings, a foreman, crane operator, oiler and six-man crew were able to average 15 lengths per day, complete except for coating. This in spite of almost incessant heavy rains. Where ditch was available without obstruction, we were able to complete about five lengths per hour. We know of no better method of connecting lengths of pipe in a water line."

A Dresser-Coupled steel line delivers water cheaper

The cheapest way to deliver water to the place where it turns into revenue is with a Dresser-Coupled steel line—the line that cuts *installation* costs, *leakage* losses and *maintenance* costs.

As in the case of this Portland water main, construction of a Dresser-Coupled line keeps going despite adverse weather conditions. Because a wrench is the only tool needed to make joints, costly weather delays are minimized or eliminated. And, in good weather, this type of construction sets a pace no other method can equal. The line starts paying its way sooner.

Leakage losses are cut because Dresser Couplings stay "flexible-tight" for the life of the line. Controlled gasket pressure is provided by controlled bolt tightness around the joint.

Maintenance costs are reduced also. Dresser Couplings harmlessly absorb underground stresses; and modern glass-smooth pipe linings, undamaged in joining because there's no heat, assure sustained high carrying capacity.

From all standpoints, a Dresser-Coupled steel line gives you the ultimate in performance and economy. See your Dresser Sales Engineer or write our Bradford Office for literature.

BE SURE you get the best line at the best price. Put steel pipe and Dresser Couplings in your specifications.

DRESSER

"FLEXIBLE-TIGHT"

COUPLINGS

Dresser Manufacturing Division, 59 Fisher Ave., Bradford, Pa. (One of the Dresser Industries). Warehouses: 1121 Rothwell St., Houston, Texas; 101 S. Bayshore Highway, South San Francisco, California. Sales Offices: New York, Philadelphia, Chicago, Houston, South San Francisco. In Canada: 629 Adelaide Street, W., Toronto, Ontario.

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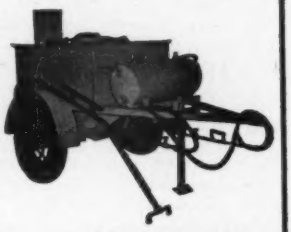
White asphalt and tar kettles are extensively used. They give long life and satisfaction.

Plain kettles or with hand or engine driven spray pumps for patching pavement. Thermometer, barrel hoist, warming hood extra. All oil burning. Semi-elliptic springs, pneumatic tires.

65, 110, 165, 220, 300 gallon capacities.

Model F-10 is oil jacketed, to heat elastic joint filler.



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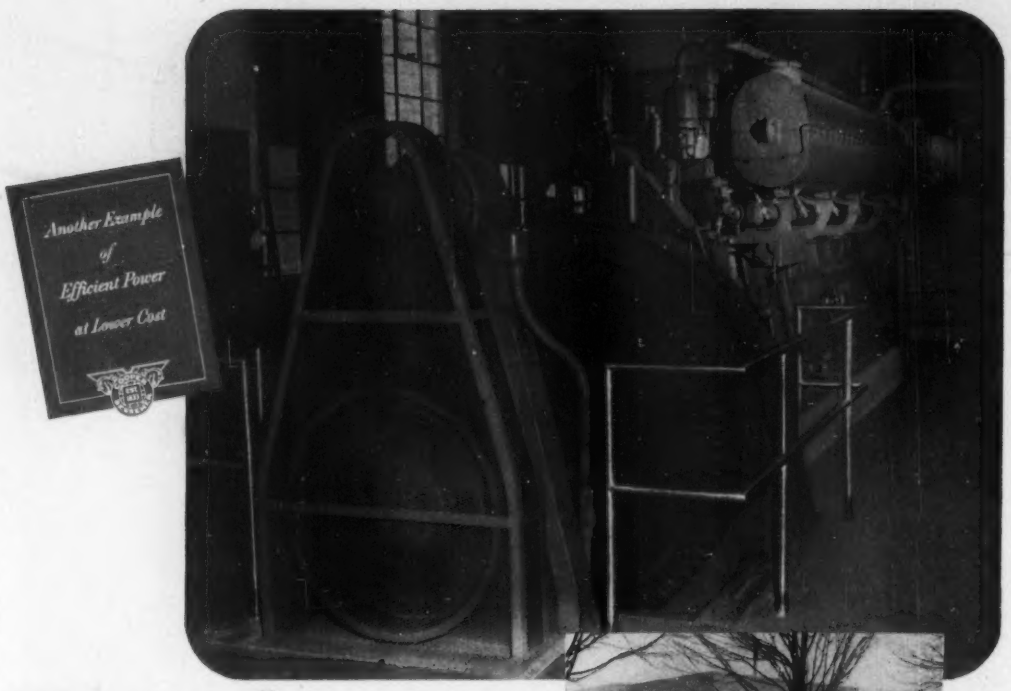

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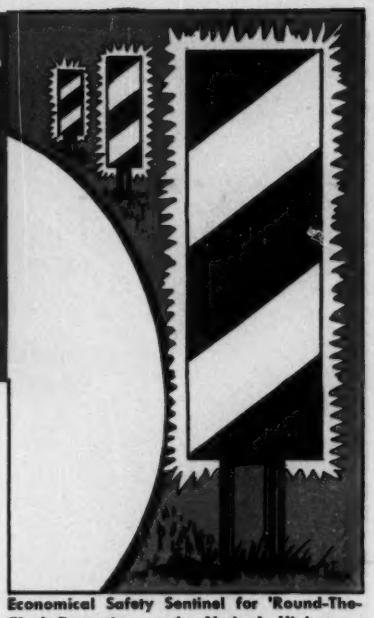

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For economical traffic markers that get their warnings across quickly and with powerful impact, specify money-saving Flex-O-Lite Striped Guide Boards.

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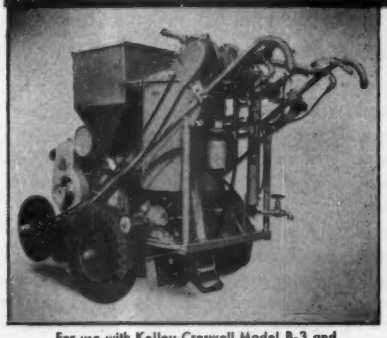
Measures 9½" x 30" Dulux enamel finish throughout. Ready for mounting.

SOLVE YOUR HIGHWAY REFLECTORIZING PROBLEMS *with the* NEW FLEX-O-LITE BEAD DISPENSER



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Advanced design! Entirely new and improved principal of metering beads! New simplified operation! Thoroughly tested and approved!

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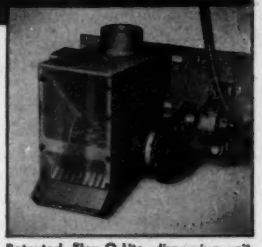

Patented Flex-O-Lite dispensing unit. Note fully visible dispensing mechanism. Plastic front affords full view of action.

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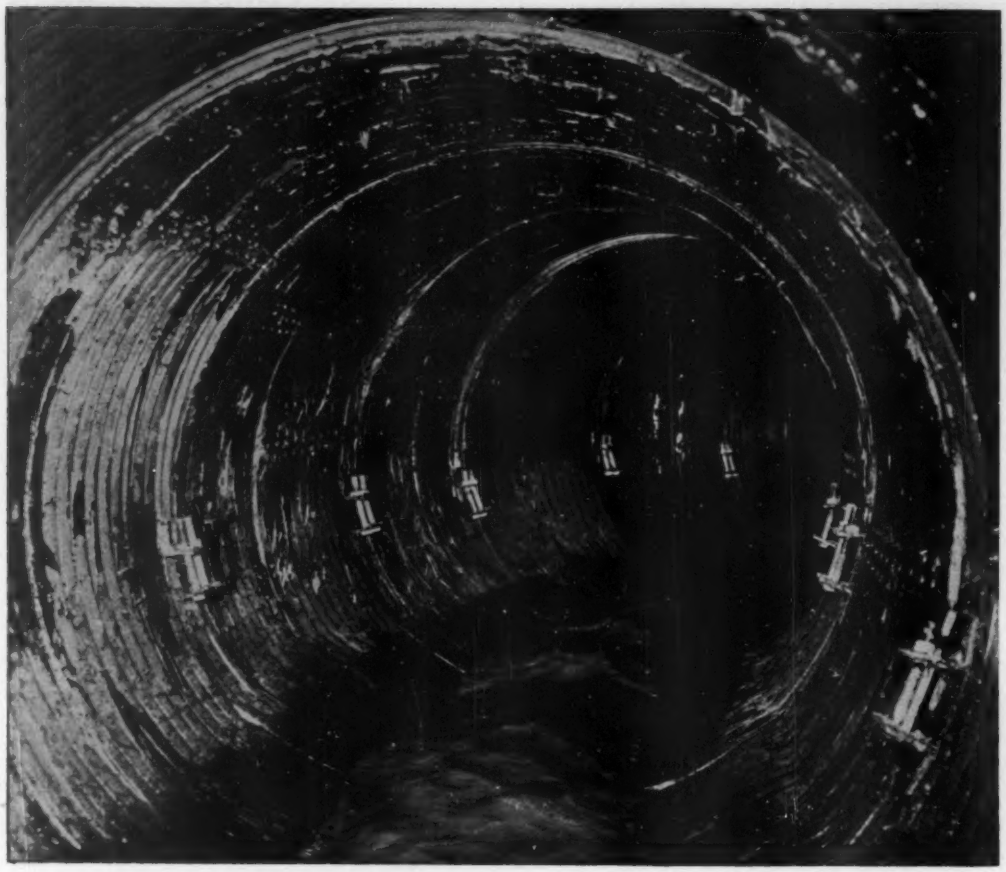

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A failed sewer can be a costly headache. But there is a quick, sure remedy.

It is a simple matter to restore failing structures to their original usefulness by relining with Armco Corrugated Metal Pipe. The job is done quickly—frequently without interruption to service. Cost is much less than a completely new installation. Efficient waterway area is assured since Armco Pipe has ample strength without excess bulk.

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Specify FEDERAL BEACON-RAY *warning light on all new apparatus*

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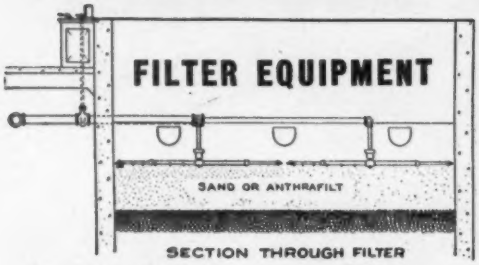

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Requires an average of 40% less wash water

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Enables you to increase filter runs up to 50%

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Doubles the length of filter runs attainable with sand and quartz media

Requires one-half as much wash water

Filters are out of service less because of the shorter wash cycle

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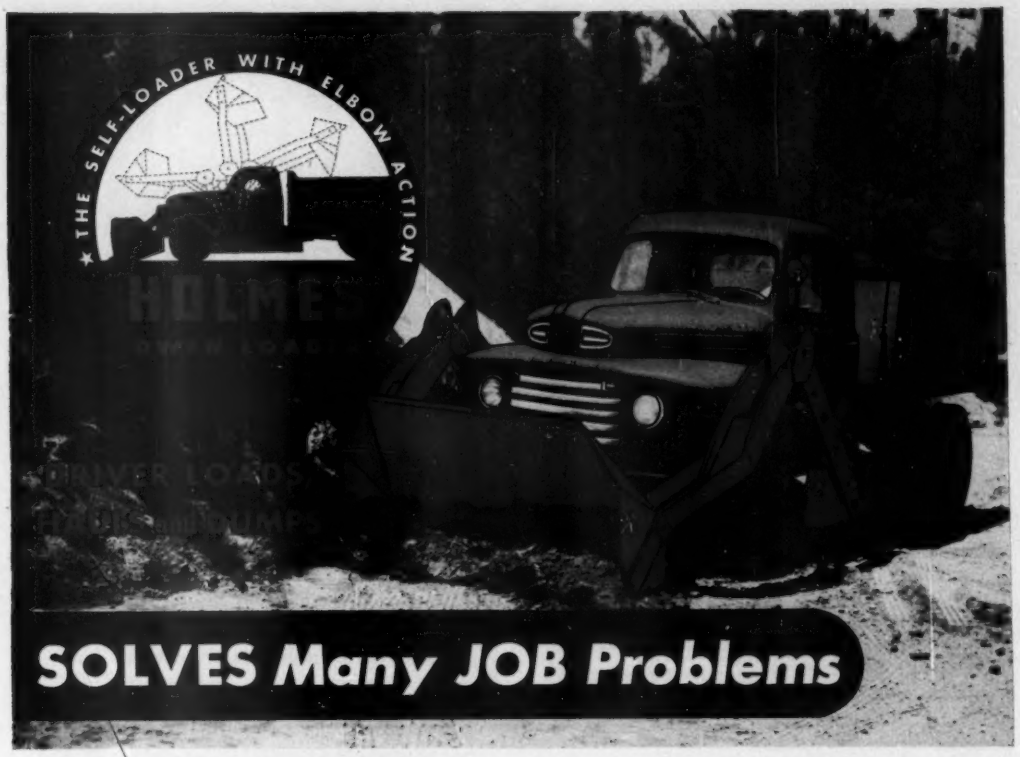

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The new Holmes-Owen Loader offers a very practical solution to many of the problems which state, county and city officials are now facing in providing increased community services.

The new self-loader provides the answer to such problems, for this equipment converts the usual dump truck into an independent working unit capable of performing a wide variety of work. It saves time, labor and the use of more costly equipment by permitting the truck driver to do his own light digging, grading, loading, and cleaning-up.

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Manufactured by

Developers of HOLMES WRECKER Equipment

DRIVER controls digging and loading operation from cab.

One-man operation speeds up LOADING, HAULING and UNLOADING.

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Imagine Finian . . . dreaming of reduced overhead by doing away with his organ grinder friend!

Like any good businessman, Finian should have known you can't reduce overhead by eliminating productive labor . . . but you do reduce overhead by making labor more productive.

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Contractors, railroads, electric power and water companies, logging road constructors, mining and quarrying companies find Warsop Portable Rock Drills and Paving Breakers especially valuable in:

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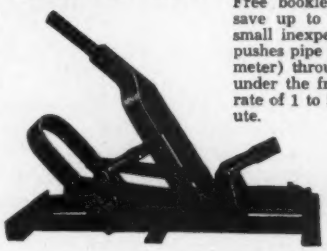
DON'T LET OLD MAN WINTER STOP *Your* PIPE INSTALLATIONS

Free booklet tells how to save up to 80% with this small inexpensive tool that pushes pipe (up to 15" diameter) through the ground, under the frost line, at the rate of 1 to 5 feet per minute.



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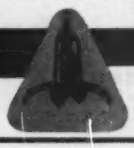

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CITY MANAGER, N. G. DAMOOSE, REPORTS—

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Reduce

Election Costs in the City of Ypsilanti, Michigan

In 1946, Ypsilanti, Michigan, using the old paper ballot system, cast 5,328 votes at an average cost per vote of 28.4 cents. At the recent November 7th, 1950 election, using AUTOMATIC VOTING MACHINES, the City cast 5,418 votes (nearly 100 more), at an average cost per vote of 13.2 cents.

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AUTOMATIC VOTING MACHINE CORPORATION

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Newly Improved
OK CHAMPION POWER SEWER CLEANER

DON'T LOSE Sewer Capacity

Clear your sewer lines regularly. Keep up full carrying capacity and you save money—in lower maintenance cost and avoiding costly backwash. Order OK Champion Power Sewer Cleaner equipment and your men remove roots, dirt and other obstructions from any storm or sanitary sewer in ONE operation. All men work above street level.

OK Champion cleaners are regularly clearing sewers all over the world. New improvements make them better than ever. Send for literature.

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Please send information on how the Improved OK Champion Power Sewer Cleaner cuts sewer cleaning costs.

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Fluoridation News

1945 1951

IN TEXAS, TOO —

CITY OF MARSHALL

MARSHALL, TEXAS

January 24th, 1951

Wallace & Tiernan Co. Inc.
1112 National City Bldg.
Dallas 1, Texas

Gentlemen:

The City of Marshall, Texas began fluoridation of its municipal water supply in the Spring of 1946, under the jurisdiction of the Texas State Health Department. Marshall was the first city in the State of Texas to use fluoridation.

In February 1950, we changed our method of fluoridation by feeding sodium fluoride with a Wallace & Tiernan Type NA Dry Chemical Feeder.

We have found the Wallace & Tiernan Type NA Feeder to be simple in operation, easy to adjust and maintain, and extremely accurate for feeding sodium fluoride. We have been able to hold the fluoride content of our treated water very constant by using this feeder.

We would be glad to recommend this feeder to any town considering adding fluorides to the public water supply.

Very truly yours,

CITY OF MARSHALL
J.W. SCHONHARDT
Water Superintendent

When *your* community is ready to look into fluoridation — and after you have consulted your State Department of Health — you'll find W&T Engineers ready and willing to help you.

Today over 30 W&T installations in Wisconsin alone.

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CHLORINE AND CHEMICAL CONTROL EQUIPMENT
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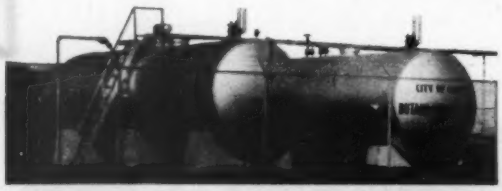

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Has outstanding advantages over sand and quarts media:

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"88-H"—a new model of medium size with all the extra traction and maneuverability of All-Wheel Drive and All-Wheel Steer.

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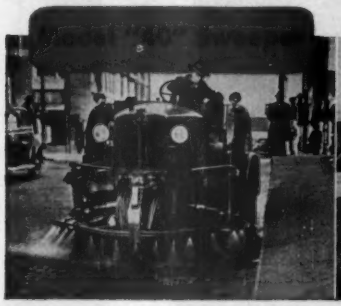
Skilled engineering characterizes each and every Austin-Western crushing, screening and washing plant, which is tailor-made for a particular production problem. We would welcome the opportunity to discuss yours.



Fast, manouverable and economical. Dirt is thrown directly into the 2-yard hopper. Right-hand or left-hand gutter broom, or both.

3-WHEELED ROLLERS with hydraulic scarifiers. TANDEM ROLLERS of the variable weight type. All with gas or diesel engines.

The ¾-swing Badger wastes no power swinging extra weight; makes more swings per hour; can work in closer quarters.

Advanced engineering and honest construction characterizes each Austin-Western product. Your nearby A-W distributor will gladly recommend the one best suited to your needs.

AUSTIN-WESTERN COMPANY, AURORA, ILLINOIS, U. S. A.

BUILDERS OF ROAD MACHINERY

Austin Western

SINCE 1859

LOWEST COST PIPE INSTALLATION...

Send COUPON Today!

Hydrauger Corp., Ltd.
681 Market St., San Francisco, Calif.
Please send, without obligation to me, the HYDRAUGER BOOKLET which shows relative costs and speeds of BORING as well as specifications of various Hydrauger models.

NAME _____ STATE _____
ADDRESS _____
CITY _____

2" to 24" BORES - Up to 250' long.

HYDRAUGER*

Reg. U.S. Pat. Office

UNDER STREETS
UNDER FREEWAYS
UNDER GARDENS
UNDER PAVEMENT

OPEN HOLE

HY-29A

AVOIDS EXCESSIVE TRENCHING

Hydrauger bored holes for pipe installation invariably reduce costs 80% to 90% by eliminating trenching and back-filling to say nothing of man-hour labor savings and safety to highway traffic.

*Earth Boring Tool

HYDRAUGER CORP. Ltd.
681 Market Street
San Francisco, California

. . . make Your municipal beach complete with a STANDARD Steel Pier

• SAFETY
All steel . . . endorsed by Campt, Resorts, Civic Organizations. Will withstand all the use you can give it. Designed for SAFETY FIRST!

• UTILITY
No maintenance . . . Sectional . . . Easily assembled. Available with Ladders . . . Benches . . . Diving Board . . . Railing . . . Steps . . . Guard Tower.

• BEAUTY
Beauty in every detail. Baked enamel finish.

Send us a rough sketch . . . giving water-depth and dimensions to meet your dock need. We will quote prices and make our recommendations without obligation.

STANDARD STEEL PRODUCTS MFG. CO.
2836 S. 16th ST., MILWAUKEE 15, WISCONSIN

Civil Defense Planners
Police Chiefs
Fire Officials
Is your city prepared for EMERGENCY DISASTERS?

COLLAPSI-COT
PATENT 2517443
can be used...

. . . to convert panel delivery trucks into emergency ambulances at very low cost . . .
. . . to convert police cars into auxiliary ambulance vehicles . . .
. . . where less maneuverable stretchers fail.

Information on how to create emergency and auxiliary ambulance corps with existing or low cost equipment is available from —
EDWARD F. HINKAMP

TEC Industries, INC. 2018 WEST NORTH AVENUE
(Formerly, Emergency Aids Company) CHICAGO 47, ILLINOIS

"GUNITE" CONCRETE (Since 1915)
SPECIALISTS IN CEMENT GUN WORK

RESERVOIR LININGS (NEW AND OLD) • CONCRETE AND MASONRY REPAIRS • STEEL ENCASEMENT • FIREPROOFING • STEEL COAL BUNKER, STACK, HOPPER, AND PLATE LINING • SEWER LINING AND REPAIRING • CANAL, DITCH, AND DRAIN LINING.

GUNITE CONCRETE & CONST. CO.
1301 Woodswether Road Kansas City 6, Missouri

District Branch Offices
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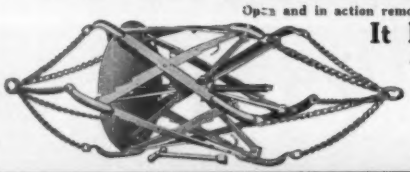
Ole K. Olsen Co., 823 Pardido St., New Orleans, La.
Philip D. Barnard, 2036 Addison, Houston 5, Tex.
Western Steel Prod. Co., 1755 W. 13th Ave., Denver 4, Colo.
See our catalog in Sweet's

EXPANDING ROOT CUTTER & SEWER CLEANER

Open and in action removing roots and caked sediment like this.



It Fits in on Every Sewer Cleaning Job
Adjusted in 30 seconds to fit any sewer from 8 to 30 inches.

Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.

Write for our new catalog on complete sewer cleaning equipment.

EXPANDING SEWER MACHINE COMPANY
108 East Walnut St. Nappanee, Ind.

For Utmost Security

IMPORTANT AMERICAN CITIES INSTALL

LOCK JOINT

CONCRETE PRESSURE PIPE

More than anyone else, those responsible for supplying water for domestic or industrial use appreciate the value of pipe lines which provide these four freedoms:

Freedom from:

- ★ Rupture or blow-out
- ★ Maintenance and repairs
- ★ Loss of carrying capacity
- ★ Corrosion or deterioration

The water works man who installs Lock Joint Concrete Pressure Pipe will have trouble-free pipe lines. The careful design of Lock Joint Pressure Pipe does not permit blow-out or rupture; its dense concrete walls are immune to tuberculation, corrosion or electrolytic attack; and its useful life has been estimated by competent hydraulic engineers at more than 100 years. Among Lock Joint's strongest supporters are the water works officials who have installed this type of pipe and who point to it as the most economical in their systems.

If you are quality minded yet cost conscious, specify Lock Joint Pressure Pipe, secure in the knowledge that you are receiving the best value the pipe industry can provide.

LOCK JOINT Bell and Spigot PRESSURE PIPE

LOCK JOINT PIPE COMPANY

Est. 1905

P. O. Box 269, East Orange, N. J.

Pressure Pipe Plants: Wharton, N. J., Turner, Kan., Detroit, Mich.

BRANCH OFFICES: Cheyenne, Wyo. Casper, Wyo. • Denver, Col. • Kansas City, Mo. Valley Park, Mo. • Wichita, Kan. • Chicago, Ill. Rock Island, Ill. • Kenilworth, N. J. • Hartford, Conn. • Tucumcari, N. Mex. • Tulsa, Okla. Oklahoma City, Okla. • Beloit, Wis. • Hato Rey, P.R.

SCOPE OF SERVICES—Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains in a wide range of diameters as well as Concrete Pipes of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.

TEXAS Pinch Hitter

Kerrville, Texas, picks International UD-24 for power in the pinches

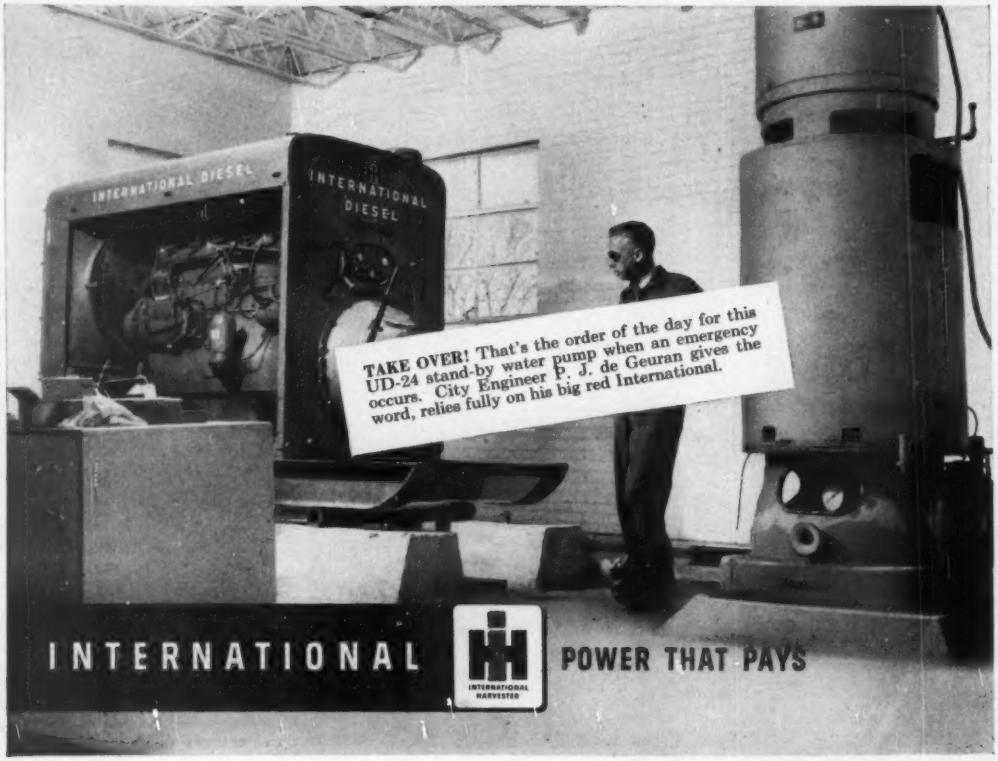
The 10,000 people in Kerrville, Texas, have no water worries in case their main power source goes dead. An International UD-24 is always ready to take over.

Running a 1,000 GPM deep-well turbine pump, the UD-24 can supply the city's water requirements when other power is not available.

International Diesel and gasoline power units have saved the day many a time in many a city. You'll find them dependable in emergencies, and you'll be surprised at the way Internationals stand up in steady year-in, year-out service.

Have your International Industrial Distributor or Power Unit Dealer show you the International engines that will fit your job . . . and put International "Power that Pays" to work for you.

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILL.


INTERNATIONAL DIESEL
INTERNATIONAL DIESEL
TAKE OVER! That's the order of the day for this UD-24 stand-by water pump when an emergency occurs. City Engineer P. J. de Geuran gives the word, relies fully on his big red International.
INTERNATIONAL
INTERNATIONAL HARVESTER
POWER THAT PAYS

Hydrocrane Keeps Pipe Footage Up — Tempers Down

"Close quarters don't stop a Hydrocrane"—this fact is graphically shown as Santa Monica's Model H-3 sets cast iron water main. Notice too that the crane hauls the pipe trailer, thus eliminating an extra truck.

"LAYING water main in a 'high value' neighborhood of Santa Monica used to bring strong opposition from residents," says Water Dept. Supt. W. W. Stephens. "Now with the Hydrocrane we can lay pipe faster with less disturbance, at much lower cost, and without ruining lawns, trees — or dispositions." In addition the crane saves time and money in loading, unloading and stockpiling pipe.

Other Departments Kept Crane On The Jump

PARK DEPARTMENT — "With the Hydrocrane we can hoist a palm tree out of the ground and onto a trailer in 15 minutes — with hand labor it took six men half a day to do the job," states E. L. Troeger, Supt. of Parks. "It's certainly a man saver on tree transplanting." The park department also uses this crane for laying water pipe serving park areas.

BUILDING MAINTENANCE DEPARTMENT — Here the truck-mounted Hydrocrane redecks piers belonging to Santa Monica in addition to capping piling and other maintenance work.

STREET LIGHTING DEPARTMENT — This department finds the crane's smooth hydraulic control a real asset for setting heavy, unwieldy lamp posts which must be handled with great care to avoid damage.

Two sizes: ¼-yd. 2-ton, ⅜-yd. 3-ton. Travels at top truck speeds . . . sets up in minutes . . . simple hand lever controls. Municipal owners tell us, "Nothing like it for city work."

BUCYRUS ERIE HYDROCRANE

SOUTH MILWAUKEE, WISCONSIN

BUCYRUS-ERIE HYDROCRANE DIVISION
South Milwaukee, Wisconsin

Gentlemen: Please send Hydrocrane bulletins to

Name.....

Company.....

Address.....

City..... State.....

108HS1

T-LOCK AMER-PLATE

THE NEW PROTECTIVE LINING FOR CONCRETE PIPE AND STRUCTURES

T-LOCK AMER-PLATE is a practical sheet lining that provides enduring and economical-protection despite extremely corrosive conditions. It is the result of many years experience in the manufacture and application of AMERCOAT protective coatings for all types of industries.

This heavy-duty protective lining is especially adapted for use in sewage lines and structures exposed to severe corrosive action where permanent protection is of vital importance.

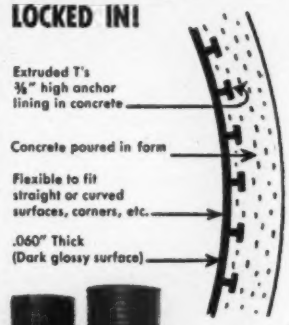
Composed of inert resins and plasticizers, AMER-PLATE is impervious to gases, highly resistant to most acids, alkalies, alcohol, oils, salts and petroleum products, has very low moisture vapor transfer and will not support combustion. Odorless and tasteless, it contains no toxic materials.

T-LOCK AMER-PLATE is applied to the inner forms of concrete pipe, structures and tanks. When the concrete is poured, the Tees are embedded and locked into the concrete and become an integral part of the finished product.

Over 10 years of development and testing have proved it to be practically indestructible in the service for which it is designed.

Amercoat CORPORATION
A Division of
American Pipe and Construction Co.
4809 Firestone Blvd., South Gate, Calif.

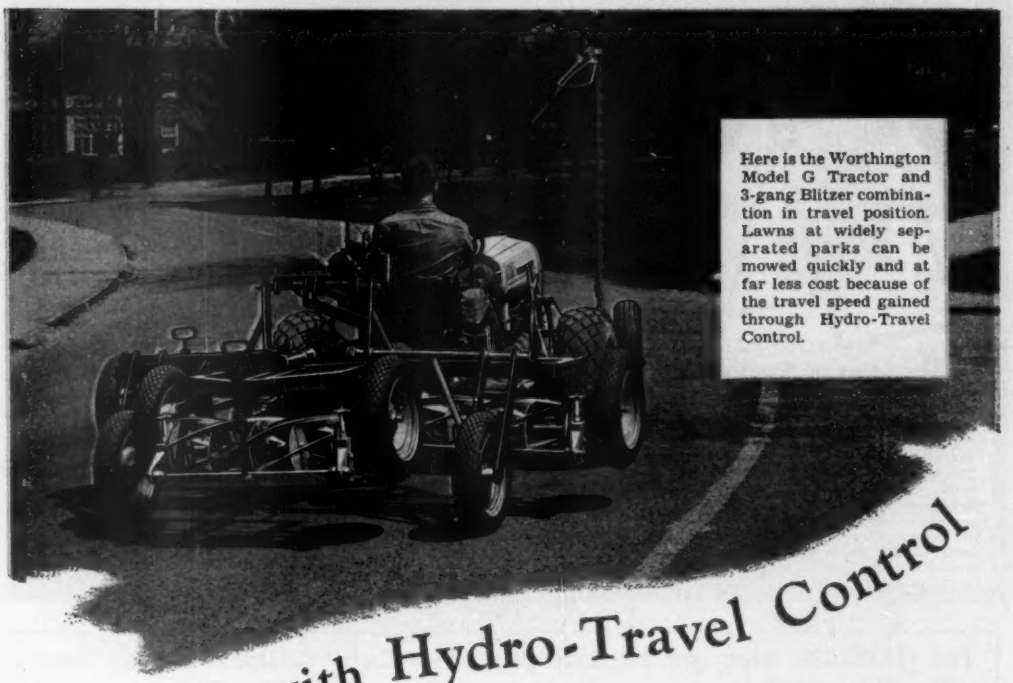
Here's how this tough, long-lasting, corrosion-resistant lining is LOCKED IN!


Extruded T's 3/8" high anchor lining in concrete
Concrete poured in form
Flexible to fit straight or curved surfaces, corners, etc.
.060" Thick (Dark glossy surface)

Placing pipe reinforcing cage over T-Lock sheet set up around inner-form.

Example of T-Lock sheet formed around complex structural members.

Get an *EXTRA* mowing bonus



Here is the Worthington Model G Tractor and 3-gang Blitzer combination in travel position. Lawns at widely separated parks can be mowed quickly and at far less cost because of the travel speed gained through Hydro-Travel Control.

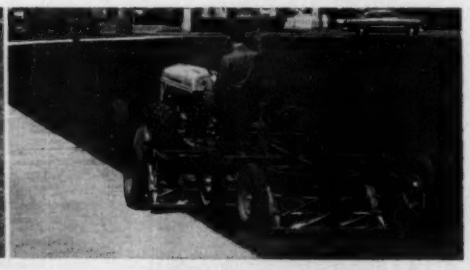
with Hydro-Travel Control

Worthington tractor-gang mower combination, equipped with Hydro-Travel control, speeds up between-job travel — converts lost travel time into productive mowing time. It takes just a few minutes to switch from cut to travel or vice versa. Mowers are raised and lowered hydraulically through positive control right at the driver's finger tips.

Hydro-Travel Control is available with 3 and 5-gang fairway mowers and Grass Blitzer mowers. Both types of cutting units are noted for durability and exceptional smoothness of cut — even when operating at high speeds.

Ask your Worthington distributor for a demonstration.

Notice that the travel wheel in no way interferes with the close trimming ability of the Worthington Gangs. Note, too, how this compact unit permits close turns, eliminating waste motion.



See how machine overlaps sidewalk, thus eliminating much hand trimming. Three-gang shown here has 7-ft. cutting swath.

WORTHINGTON MOWER COMPANY, STROUDSBURG, PENNSYLVANIA

The Sure Road to Safety

EASTERN "A" STANDARD *and* TRAFFIC SIGNS

FOLDS AND LOCKS IN PLACE
STRIKING APPEARANCE
EASY TO USE

Pat. Pending

New Type Eastern "A" Standard

. . . enthusiastically accepted by city and county highway departments for most effective warning of motorists approaching a work area. Durable angle iron frame opens into a wide base that won't be knocked over by strong winds or gusts from passing trucks.

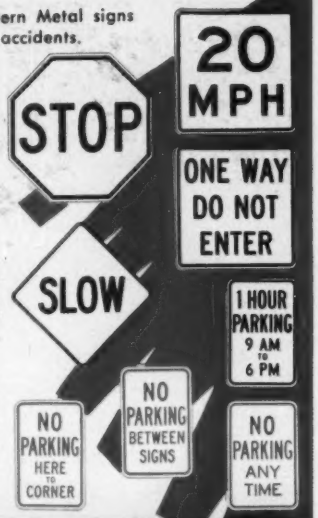
Unit stands 27-in. high, is 18½-in. wide, and sign is 18-in x 18-in. Weighs only 13 lbs. Flags are removable and unit folds neatly, locking sign in place for convenient carrying and easy storage.

Put safety to work for you with Eastern Metal signs . . . constantly on guard against accidents.

All Eastern Metal signs are official designs as specified by the Dept. of Commerce—Bureau of Roads, with new legible lettering, brilliant colored backgrounds, heavy - gauge steel, and durable flexible baked enamel resistant to weather and stone bruises.

Traffic Signs have brilliant yellow or white backgrounds with black lettering. "A" Standard has red angle iron frame and yellow free-swinging sign with black lettering on both sides; choice of eight standard signs. Also reflectorized for extra safety at night.

Eastern Metal Signs, adopted by major municipalities, assure you of economical price and prompt delivery. Illustrated folder and price list sent on request.



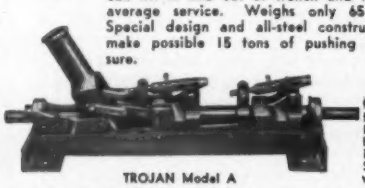
INDUSTRIAL • SAFETY
EM
SIGNS
UTILITY • TRAFFIC

EASTERN METAL of Elmira, Inc.
Elmira Heights 1, N. Y.

The TROJAN pipe puller and pusher — Cuts Costs! Saves Time!

• Simplifies installation or renewing water and gas service lines under pavement

MODEL A—for ½" to 1" pipe. One man can lift in and out of trench and install average service. Weighs only 65 lbs. Special design and all-steel construction make possible 15 tons of pushing pressure.

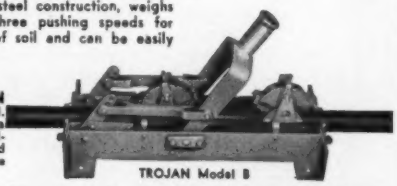


TROJAN Model A

MODEL B—will push up to 2" pipe without additional dogs, clamps or wedges. Heavy duty, all-steel construction, weighs 140 lbs. Has three pushing speeds for different types of soil and can be easily reversed.

DOUBLE ACTION AND CONTINUOUS OPERATION

No re-setting or grip required. Push pipe is made of double extra heavy steel pipe with inside couplings for butt joint. Pilots and Special Couplings will handle variety of jobs.



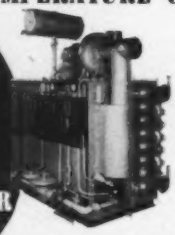
TROJAN Model B

The TROJAN Manufacturing Co., 1112 Race Drive, Troy, Ohio

41 GREENWAY—HAMDEN, CONN. BOX 465—MEMPHIS, TENN.

TEMPERATURE CONTROLLED

P.F.T. DIGESTER HEATER AND HEAT EXCHANGER



P. F. T. Heaters provide close digester temperature controls, assuring highest possible gas production and digested sludge quality. Fired with sewage sludge gas or oil or a combination of fuels. Also utilize waste heat from engine jacket water. Write for Bulletin 135.

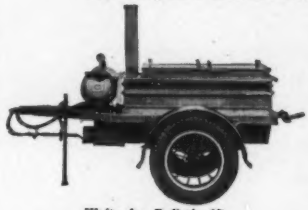
P.F.T. **PACIFIC FLUSH TANK CO.**

Waste Treatment Equipment Exclusively Since 1893

4241 RAVENSWOOD AVE. CHICAGO 13, ILLINOIS

NEW YORK • LOS ANGELES • SAN FRANCISCO • CHARLOTTE, N. C. • INDIANAPOLIS • DENVER

Connery's Style W Heating Kettle Made in 75, 110, 165 and 210 Gallons.



For speedy heating of Tar and Asphalt for road, street and airport runway repairs use Connery's style W kettle, the most efficient heating kettle of its kind.

Write for Bulletin 87.

CONNERY CONSTRUCTION CO.

4000 N. Second Street Philadelphia 40, Pa.

Madison (WIS.) or Mexico City (MEXICO)

In cities and towns of all sizes, HEIL COLECTO-PAKS make garbage collections fast, clean, sanitary, economical

Colecto-Pak bucket unloads in less than a minute.

Cut-away view showing how packer plate compresses the load.

Body raises to 45° dumping angle in 12 seconds. This and tapered body design assure fast, clean discharge.

Heil Colecto-Paks can help you make the most of your budget . . . please employees and taxpayers

No matter what the size of your community, Heil Colecto-Paks can help you improve garbage collection . . . eliminate the unsightly, unsanitary features of open-body collections.

Records in the sanitation departments of many municipalities prove that Heil Colecto-Paks cost less to operate and maintain. 9- and 12-cu. yd. capacities—smooth-working, quiet and dependable.

Your good judgment in selecting modern, streamlined Heil Colecto-Paks is appreciated by collection crews and citizens alike. The totally-enclosed steel body keeps garbage out of sight and smell, prevents "scattering", and reduces the health hazard of flies. The "waist-high" loading height of only 35 inches helps collection crews load easier, faster, and with less strain. Because a packer plate compresses 24 cu. yds. of wrapped garbage in a 12-cu. yd. body — or 18 yds. in a 9-cu. yd. body — you make fewer trips to the dump.

Let Heil Colecto-Paks help you and your community enjoy an enviable reputation for maintaining high standards of sanitation at low cost. Specify Heil Colecto-Paks on your next request for a bid. Write for Bulletin BH 47109.

BH-109

THE HEIL CO.

DEPT. 4351, 3043 WEST MONTANA STREET, MILWAUKEE 1, WISCONSIN

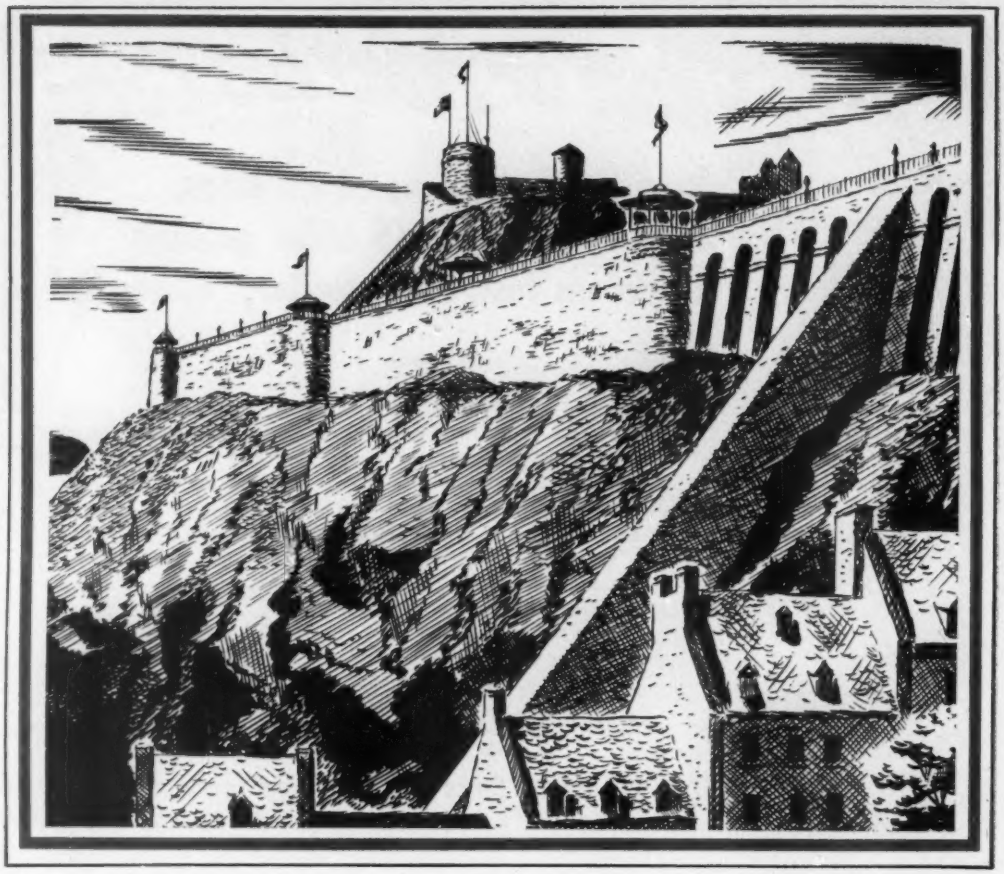
Factories: Milwaukee — Hillside, N. J.

District Offices: Hillside, Washington, D. C., Atlanta, Milwaukee, Detroit, Chicago, Minneapolis, Kansas City, Dallas, Los Angeles, Seattle

HEIL PLATFORM CONVERSION HOISTS

HEIL DOZERS

HEIL BODIES AND HOISTS



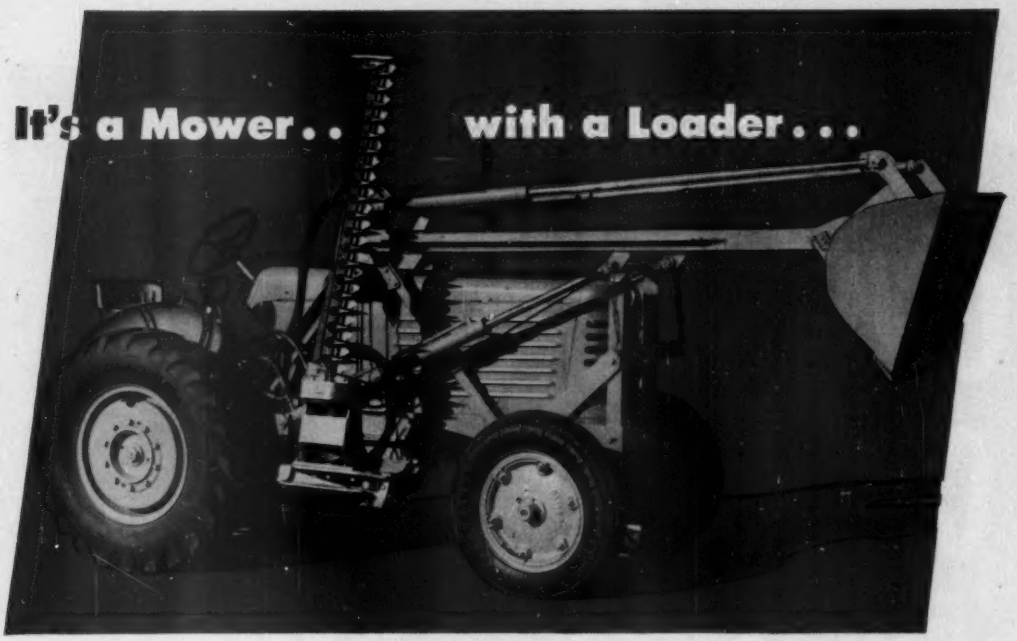
Quebec's famous Citadel, over 330 feet above the St. Lawrence, as it looked 100 years ago

Romantic Quebec has a cast iron gas main in service that was installed over a century ago. Reminiscent of those days are the horse-drawn vehicles for nostalgic tourists. Now, how could the gas engineers have foreseen the advent of trailer-trucks and giant buses, and the resultant traffic-shock?... That sewers and conduits for utility services would ultimately share the underground at risk of soil disturbances? Yet that gallant old cast iron main has had the necessary shock-strength and beam strength. Effective resistance to corrosion, as well as strength, are *must* factors of long life in pipe to be laid under city streets. This is shown by the fact that cast iron water and gas mains, laid over 100 years ago, are still serving in the streets of more than 30 cities in the United States and Canada.

United States Pipe and Foundry Co.,
General Offices, Burlington, N. J.
Plants and Sales Offices Throughout the U. S. A.

U.S.
cast iron
PIPE
FOR WATER AND GAS SERVICE

NUMBER FIVE OF A SERIES



It's Your Cost-Cutting Combination!

Here's how to really step up the usefulness and profit-making ability of your Oliver Wheel Tractor-Loader. Simply add an Oliver Hydraulic Mower and you get a cost-cutting combination that will be busy virtually all year round. You can install the mower quickly and easily for those few days or weeks of work per mowing month . . . pull it off for the regular run of loading jobs. It's the ideal combination to cut your operating costs.

This powerful mower fits right into your tractor-loader. Cutter bar is driven by the hydraulic pump of the loader so no separate power units are required. Mower will cut anything from thick matted grass to moderate brush—in fact, almost anything that will pass between the knife guards. Hydraulic safety mechanism practically eliminates knife damage. Operator can cut right up to an obstruction . . . hydraulically raise the cutter bar to clear the obstruction...go right on mowing.

For all the facts on this cost-cutting combination that gives you year-round work with a tractor-loader-mower economically, see your Oliver Distributor or write us direct.

THE OLIVER CORPORATION

Industrial Division: 19300 Euclid Avenue, Cleveland 17, Ohio

A complete line of Industrial Wheel and Crawler Tractors

ANNOUNCING GENERAL ELECTRIC'S...

CIVIL DEFENSE COMMUNICATION ADVISORY SERVICE

FOR CITIES · COUNTIES · TOWNS · VILLAGES!

THESE MEN ARE SPECIALISTS TRAINED TO HELP YOU!

A HOW-TO-DO-IT BLUEPRINT for community safety offered as a public service at no cost to you!

HERE is a sound, workable approach to civil defense communications. Here's an *operating plan* that makes efficient use of the 2-way radio systems at your command . . . supplements existing wire line facilities in your area . . . and ties together these vital services in time of emergency:

Trained at Electronics Park, world center of electronics progress, G-E radio communication specialists are prepared to help your community organize the kind of communications network it should have today, tomorrow, every day. The G-E man near you will analyze your area's existing communications, survey its emergency needs and recommend the best, most economical method of setting up a reliable network to do the job—*and all this at no cost to you!*

You can help your community by making use of this service. Practical aid from electronics engineers is as near as your telephone. Call your G-E civil defense communications specialist today for details.

WRITE OR WIRE TODAY FOR THIS *FREE BROCHURE!*

The need is so great—and it costs you nothing. Every civil defense official should have a copy of this G-E communications brochure. Call the G-E man near you for your copy or write: *General Electric Co., Section 1051, Electronics Park, Syracuse, N. Y.*

In Canada, Canadian General Electric Company, Ltd., Toronto

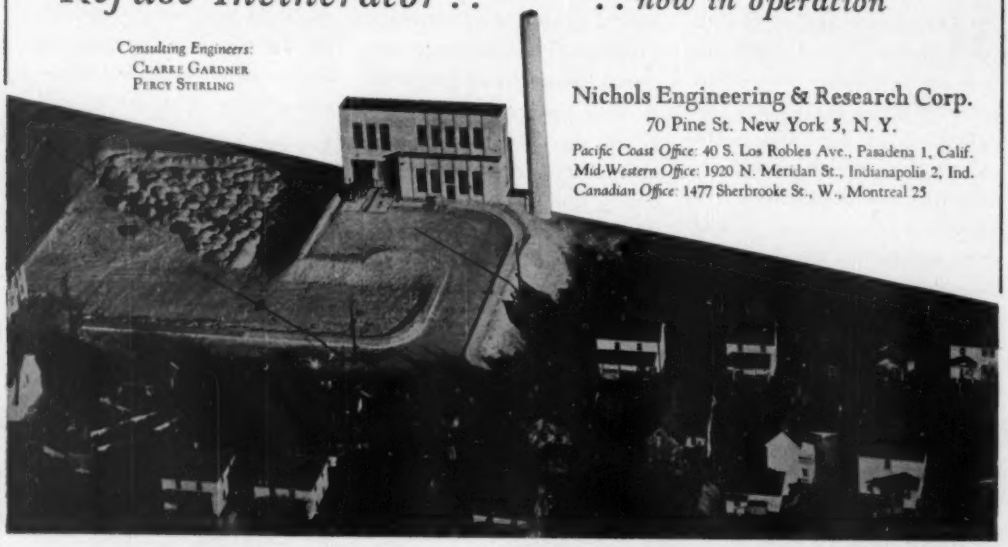
You can put your confidence in—

GENERAL ELECTRIC

New Salisbury, Md. 125 Ton

Nichols Monohearth Mechanically Stoked Refuse Incinerator . . . . . now in operation

Consulting Engineers:
CLARKE GARDNER
PERCY STERLING



Nichols Engineering & Research Corp.
70 Pine St. New York 5, N. Y.
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IS INEXPENSIVE FOR ATTACHING STREET SIGNS

Hundreds of city and state highway departments vouch for the economy and worker convenience of A. J. Gerrard modern strapping methods.

STAINLESS STEEL—for permanent mounting.

GALVANIZED STEEL—for semi-permanent mounting (3 years).

Complete accessories in both metals.

For free demonstration or full information concerning the low-cost A. J. Gerrard method, write for name of nearest representative.

SS-2

STEEL STRAPPING

A. J. Gerrard & Co.
1952 HAWTHORNE DRIVE • MELROSE PARK, ILL.
(Chicago Suburb)

WHY

YOUR BEST BUY
Block from Times Square . . . Walking distance to everything worthwhile.

HOTEL LINCOLN
44th to 45th STS.
at 8th AVE.
NEW YORK

1400 Rooms, each with Tub and Shower, from . . .
$3.50

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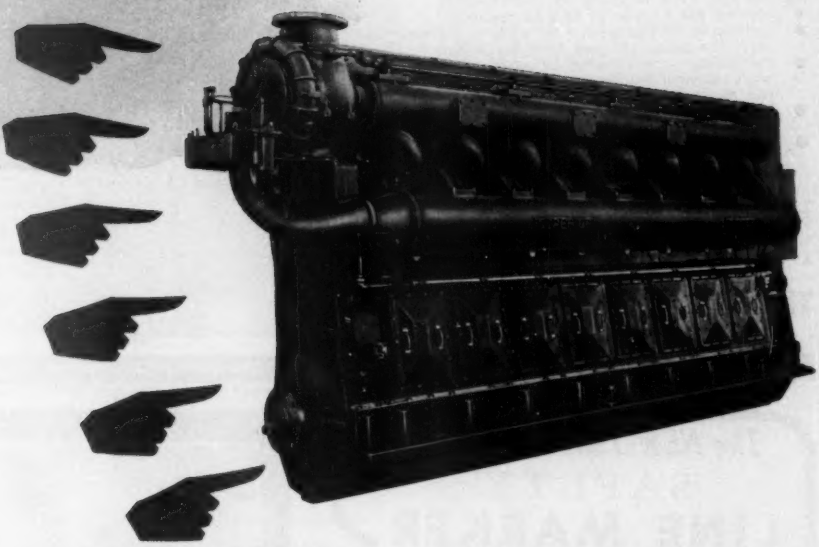

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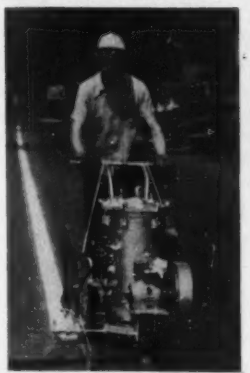

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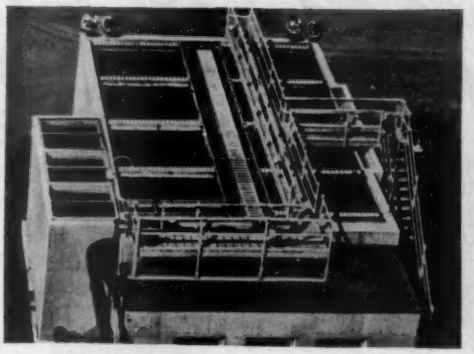

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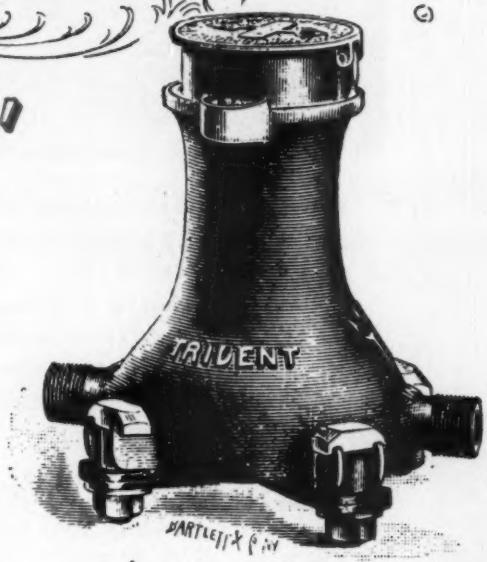

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Survey Shows

Over $5,300,000,000 Local and State Public Works In Planning Stage

A COMPILATION listing state and local public works recently placed in blueprint or planning status without federal assistance—a survey that is far from complete but which is the most comprehensive body of nation-wide information in this field—has been gathered by the Community Facilities Service of the Housing and Home Finance Agency.

It does not include projects for which repayable funds for public-works planning have been advanced to local public bodies.

Although many of the political units questioned reported "no plans" and some failed to reply at all, this report stands with 5,894 projects to cost $1,204,027,000 for which blueprints and specifications have been completed, and

By HARRY HEWES
Information Officer
Community Facilities Service
Housing and Home Finance Agency

17,881 projects to cost $3,362,932,000, in the design or "progress" stage, most of which have been scheduled for construction within three calendar years.

The figures were received in a canvass approaching all state and county governments, incorporated communities of 2,500 or more population, and established school and drainage districts or other similar special authorities serving communities of 2,500 or more. A covering report is being prepared by CFS Commissioner Pere F. Seward for HHFA Administrator Raymond M. Foley.

Added to these projects, there were, on March 1, some 1,156 applications, for which CFS has approved interest-free advances to assist in the plan preparation of public-works undertakings, and which will cost an estimated $738,644,527 in the second Advance Planning Program. The advances will be returned into the United States Treasury when construction work is started.

New Criteria for Advances In Construction

Many of these data were in hand before new criteria were clamped on proposed public-works construction to bring it into conformity with the two following requirements: (1) that the projects will contribute directly to the defense operations; or (2) that projects will meet essential civilian re-

PLANS COMPLETED WITHOUT FEDERAL ASSISTANCE		SCHEDULED TO START WORK		
	Estimated Cost	*1950-51*	*1952*	*1953*
Total	5,894 $1,204,027,000			
Highways, roads, and streets	2,296 $254,840,000	$137,775,000	$36,308,000	$25,684,000
Bridges, viaducts, grade separations	506 34,627,000	14,322,000	8,804,000	3,581,000
Airports	20 3,872,000	3,807,000	65,000	.....
Sewer systems with disposal plants	209 113,916,000	53,373,000	34,162,000	8,144,000
Sewer systems without disposal plants	676 204,156,000	57,982,000	35,691,000	27,861,000
Water systems	383 78,372,000	62,314,000	6,491,000	6,588,000
Other sanitation facilities	40 5,682,000	1,497,000	3,646,000	207,000
Schools below college rank	961 237,129,000	178,879,000	21,565,000	13,630,000
Colleges	109 46,474,000	31,764,000	9,764,000	3,215,000
Hospitals and health facilities	130 90,688,000	69,634,000	15,576,000	2,999,000
Public buildings	195 56,304,000	28,609,000	7,671,000	2,756,000
Parks and other recreational facilities	221 25,507,000	13,822,000	3,364,000	6,354,000
Miscellaneous public facilities	148 52,460,000	22,978,000	16,038,000	7,678,000
PLANS IN DESIGN STAGE WITHOUT FEDERAL ASSISTANCE				
Total	17,881 $3,362,932,000			
Highways, roads, and streets	8,673 $599,955,000	$265,682,000	$146,525,000	$126,262,000
Bridges, viaducts, and grade separations	1,538 132,126,000	47,931,000	39,313,000	31,636,000
Airports	109 6,119,000	2,899,000	826,000	711,000
Sewer systems with disposal plants	516 191,324,000	82,606,000	51,713,000	50,087,000
Sewer systems without disposal plants	978 250,321,000	74,413,000	55,158,000	31,735,000
Water systems	852 304,782,000	126,582,000	57,578,000	75,421,000
Other sanitation facilities	109 31,791,000	8,826,000	11,745,000	8,545,000
Schools below college rank	2,663 735,290,000	428,944,000	175,832,000	85,787,000
Colleges	425 191,642,000	128,851,000	28,811,000	24,544,000
Hospitals and health facilities	320 169,809,000	114,377,000	29,278,000	24,198,000
Public buildings	530 190,038,000	128,221,000	27,146,000	11,898,000
Parks and recreational facilities	838 89,765,000	37,118,000	18,799,000	17,140,000
Miscellaneous public facilities	330 469,970,000	123,696,000	64,907,000	271,083,000

quirements the deferment of which would impose serious hardship.

This order will further change the scope of the record as it is contrasted against the virtual astronomical backlog of needed state and local public works; a story of deferment, and makeshift and patching that dates to the Depression, to World War II, and to the post-war years. At 1948 prices, the local public-works need was estimated at about $100,000,000,000.

In regions of defense activity, where new concentrations of population will impose burdens on existing utilities and services, considerable public-works construction may be expected. In other areas, construction will consist of just about enough to go along with, or get by on, for the present, so that materials and manpower may be diverted to more urgent needs.

The survey was undertaken after the 81st Congress, in October 1949, authorized $100,000,000 to reinstitute the Advance Planning Program for non-federal public works, and was intended to determine the extent of active state and local public-works planning against the known need.

In the first Advance Planning Program, June 1945—June 1947, set up under Title V of the War Mobilization and Reconversion Act of 1944, a total of $61,669,000 was advanced to local governmental agencies for the preparation of plans of 7,338 projects estimated to cost $2,300,000,000 when constructed.

When the looked for down-swing in unemployment did not happen, Congress cut off the advance planning funds, but not until one of the most interesting experiments in the long history of the American building industry had been given a trial.

From the record of the two planning programs (the current program will expire in October) and the canvass of other planning, there is evidence that many communities have made efforts to catch up with the long and persistent accumulation of public-works needs. It is recognized, of course, that defense priorities must govern the projects scheduled for early construction, both those in which federal assistance has been available and those planned or under planning without such help.

Types and Status of Advance Planning

Broken into types, the returns show that local units are preparing blueprints, studies, and specifications, listed in the table on the preceding page.

Projected local public works, for which advances for plan preparation have been approved under the second Advance Planning Program as below:

As in the planning programs without federal assistance, streets, sewers, and sewage facilities are in the lead, with the traffic problems reflected in one degree or another in some 11,000 contemplated projects for highways, roads, and street improvements. Most of the projects, it may be believed, report, if not pressing and essential need, at least that additions to public works would be desirable and generally useful.

The motorist delayed twice a day to and from work by jammed-up traffic bottlenecks isn't apt to be too patient with matters of priority or the economics involved. Neither is the parent, in communities with heavy school-plant deficiences, where protracted postponement of needed construction has resulted in educational privation for his children, inclined to scan too closely the tax source or other needed revenue.

School and Sanitation Needs

Keeping in mind that this report is no complete record of either plans or needs, there are in the figures, nevertheless, evidence that the school plant has little immediate prospect of being brought to par.

From all the plans in the survey of projects without federal assistance, blueprints have been completed for 961 schools, and 2,663 are in the design stage. To these there can be added some 300 others on the architects' drawing boards under the second Advance Planning Program. There are estimated requirements, reflecting all of the known facts, holding that between 200,000 and 240,000 classrooms will be needed during the next five years. By 1954, competent authorities forsee an enrollment in elementary and high schools of some 34,200,000 pupils. Neither the school plant of today, nor that envisaged in plans now countable, can meet that load.

In the field of sanitation, while hundreds of sewer and sewage projects are in planning stages, these can be measured against a need set by the United States Public Health Service at 80,000 miles of new mains and 12,000 treatment plants. During 1950, however, more than 1,100 treatment plants were in some stage of construction.

Many Reports Lacking

Again it should be kept in mind that these figures do not give the whole picture. Reports from the CFS canvass were received from only 31 states, 420 counties, 760 cities and towns, and 389 schools and 37 special districts. Among the 10 largest cities making no reply to the questionnaire were Chicago, Los Angeles, Cleveland, and Washington, D.C., although three of them—Boston, Chicago, and Washington—contemplate public-works planning under the CFS advance program.

In the compilations covering the public-works planning picture in the United States, while the big cities dominate in the amount of money to be expended and in the general size of the projects contemplated, there is a notable trend in the smaller communities toward planning those facilities that will add to the amenities of urban living.

Many of these communities, which a few years ago were described as town-pump towns, have engineers or architects at work on sanitary-sewer systems and disposal facilities, on water systems, public-health centers, and schools. The whole concept of the advance planning of public works would seem to have been accepted pretty well throughout the nation since the pattern was set in the first Advance Planning Program of 1945-1947.

FEDERAL AIDS FOR LOCAL PUBLIC WORKS PLANNING

Partial list of advances for plan preparation under second Advance Planning Program—construction work to start within three years after plan completion and approval.

	No. of Projects	*Cost*	*Planning Advances*
Highways, roads, streets	50	$14,781,767	$ 491,736
Bridges, viaducts, grade separations	30	19,254,095	595,860
Airports	3	4,518,250	114,700
Sewer facilities	389	230,157,399	6,655,278
Water facilities	120	43,747,286	1,396,942
Sanitary facilities	12	4,372,234	175,576
Schools, other educational facilities	310	163,665,480	5,406,079
Hospitals, health facilities	13	19,048,155	467,040
Other public buildings	55	70,242,883	2,006,860
Parks, other recreational facilities	29	9,298,521	294,480
Miscellaneous public facilities (nec)	16	27,643,642	508,965

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New Approach Needed For Civil-Defense Training

By WARREN CHENEY*
Chairman, Training Aid Committee, Civilian Protection Group

IS CIVIL-DEFENSE TRAINING a problem in your city?

Are you having a bit of difficulty with CD recruiting?

Are you wondering what added techniques could be brought into action to speed recruitment as well as shorten and at the same time improve CD training?

Do you ever lie awake at night wishing you could think of some way to get your CD unit ready for action soon—soon enough should attack from the air begin this summer or autumn?

If these questions bother you, they also bother thousands of others concerned with civil defense. They, like you, have been repeatedly dismayed, frustrated, discouraged to the point of despair, over the slowness of recruitment, the 30-week training courses, and the impalpable road blocks which keep civil defense from getting to first base: the day when the entire city can be put through its first full-dress atomic-bomb drill.

It is commonplace in CD circles to blame public apathy, to shrug off CD as an inherently and hopelessly inefficient operation, to blame the state or the federal civil-defense offices for lack of leadership, lack of money, or both. But there is yet another basic cause which, for lack of attention, may be the most far-reaching of all: *lack of technique.*

Recruiting Is a Technique

Recruiting is a technique; training is a technique. The fact that the subject is civil defense rather than military defense does not alter the fact that both civil-defense and military-defense organizations must recruit and train.

We in America are not novices at recruitment and training. Industry and commerce, labor as well as management, have been doing both for many years. The armed services, likewise, have been doing them. As a result, there is a sizeable and experienced body of professional people who are specialists in recruiting, and people who are specialists in training. Why not use them?

In a limited space there is room for only a few hints as to what could be done in CD training and recruitment should the professionals of these fields be put to work and their tools procured in proper amounts to do the jobs that CD needs done very urgently today.

Certainly one tool of vital importance to both training and recruitment programs in civil defense is the motion picture, which—together with its auxiliary, the slide-film or film strip—provides the most powerful kind of teaching instrument of modern times.

Research studies have repeatedly proved that "the use of effective and appropriate films results in more learning in less time, and in better retention of what is learned."

One of the main reasons that a raw recruit can be trained for combat duty in 14 weeks is that army instructors are able to make full use of films, the trainee seeing an average of one film a day for 100 days.

Most kinds of civil-defense personnel are capable of being trained with a similar technique. Virtually every phase of CD work needs the help of a specially tailored recruiting film, and each type of CD job needs the help of several films that teach. In addition, CD needs more of the orientation and indoctrination films which have begun to be made, plus films that build morale, motivate CD personnel to do their jobs well, and keep the volunteer CD teams interested in and faithful to their tasks.

Given the proper film tools, CD recruiting agencies could achieve their quotas perhaps 100% faster; CD training could cut 30-week courses to 15; reduce 15-week courses to six, and graduate a better-informed student. These are not haphazard assertions. The record of achievement credited to training films firmly supports them.

If civil defense would make use of the film tool, however, it will have to recognize certain facts. CD recruiting, nation-wide, must enlist some 20 million or more people. CD training must educate that large body and make it proficient in a wide variety of jobs. The task is comparable to recruiting and training armed services *six times as large* as our present fighting forces.

Ingenuity Needed

Not only is the CD task six times greater numerically than that faced by the Department of Defense; it has also the great difficulty that CD must get its manpower entirely from volunteers.

To take a realistic view, civil defense needs at least as many films for training and recruitment as are now used by the armed services. These films must be as well suited to the special training problems of CD personnel as the Army, Navy, and Air Force film programs are suited to military personnel. Civil defense should not assume that its people are any less precious than a soldier, airman, sailor, or marine.

That some key officials of the Federal Civil Defense Administration are aware of the need for CD films and are trying to do something about it is a fact that deserves to be known. But it is also a fact that the state and city CD officials have not yet set up anything resembling a "national demand" for a comprehensive film program. And no federal officer can be expected to initiate or push through Congress a large project of the kind CD films require until the demand from CD grass roots is truly large, strong, and nation-wide.

The methods of organizing that demand and carrying through the necessary campaign are not the subject of this article. But, certainly, such a campaign must be carried out if CD recruitment and training is ever to get the hundreds of kinds of films they need.

Civil Defense Film List

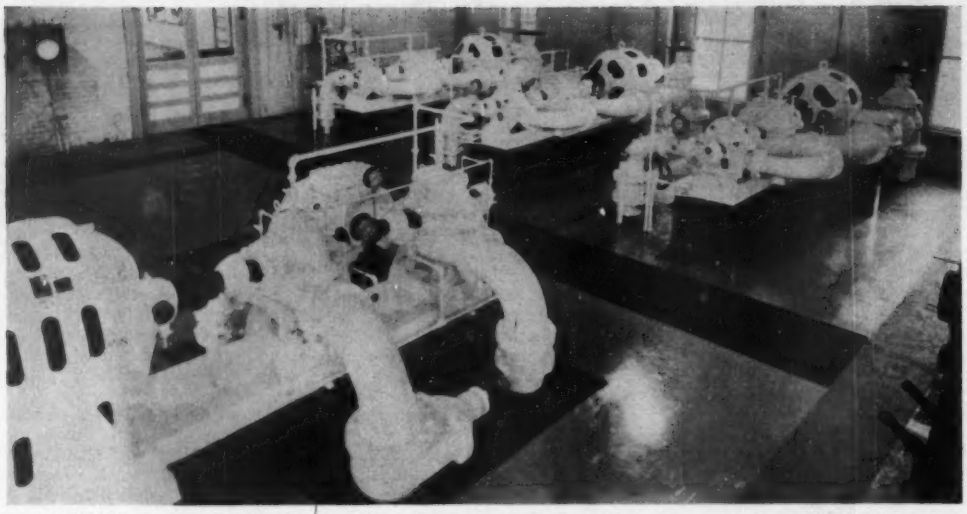
The films in the following list, selected by the Training Aids Committee of the Civilian Protection Group, have been evaluated as having specific uses in civil-defense work. Some, like the 1951 films produced for the Armed Forces Special Weapons Project, are among the best of the since-Korea group. Others, like those made in England for CD work of World War II, are included as among the best films showing documentary scenes of CD in action. A third group, such as those produced for the armed forces, include films dealing with jobs which CD as well as military personnel will perform should war come to America.

It is hoped that additional evaluated film lists for CD will be supplied by the CPG Training Aids Committee for publication in subsequent issues.

EFFECTS OF AN ATOMIC BOMB EXPLOSION. 1951. 20 min. For loan at Army Film Libraries as MISC 7815. Made for the Armed Forces Special Weapons Project by Cascade Films, Hollywood, this is one of the best films made on the subject. Deals with blast, heat, and

(*Continued on page 176*)

* The author is a member of New York City's Civil Defense Speakers Bureau. He is also a writer and producer of training films with the Signal Corps Studios, New York City.



The Neville Island station has four pumps; it supplies water to an area that requires pumping against high pressure.

Good Groundwater Made *Better*

West View Authority uses water drawn from a glacial-laid gravel bed and softens by zeolite, using natural brine from local wells to regenerate water

By D. E. CHASE
Manager of Municipal Authority
and
W. H. MARKUS
Municipal Authority Solicitor
West View, Pa.

SOUTHWESTERN PENNSYLVANIA is one of the largest centers of heavy industry in the world. The problem of finding an adequate supply of good water is difficult, as it is in many communities, because of the heavy cost and extensive treatment required to make river water safe for domestic and industrial use. Most of the surface streams are contaminated with sewage and industrial wastes.

The State of Pennsylvania, as well as the individual communities and industries are joining together to purify the surface waters through flood control, sewage disposal, and pre-treatment of industrial wastes, so that they will have streams that are not only more beautiful and suitable for recreation, but will also provide a more palatable water supply.

Water from Glacial Formation

The Municipal Authority of the Borough of West View is fortunate in that it does not use surface waters to supply water to the residents of some 15 municipalities with a population of 90,000 persons; instead, the Authority supplies groundwater. The source of this water was begun millions of years ago, when glaciers moved down from the North into Canada, New York State, and northwestern Pennsylvania. They pushed gravel before them, which filled the river beds in western Pennsylvania and in the Ohio River Valley all the way to the Mississippi. The depth of this gravel bed is 300 to 400 feet near its beginning in New York State and northern Pennsylvania, and it becomes shallower as it runs southward.

An interesting sidelight on the glaciers is that the direction of flow of the Ohio River was changed completely by the force of their movements. Originally, all streams north of Kentucky flowed northward and discharged through the St. Lawrence system. The Ohio, with headwaters near Wheeling, W. Va., flowed northeast, was met by the combined Allegheny and Monongahela Rivers and flowed into Lake Erie.

The gravel bed, lying under the Allegheny and Ohio Rivers, is covered with a heavy layer of silt, or washed clay, which acts as a seal and insulation to keep practically all of the river water above from seeping through. Whereas the water that flows into the rivers comes from run-offs from the hills and the overflow from the gravel beds, the gravel beds are fed by seepage from rock-bottom percolation of rain water laterally through alluvial plains along the valley rims. The groundwater from the gravel bed is used by many industrial and commercial establishments in the Pittsburgh area and by many communities for their municipal water supply.

Water Characteristics

Groundwater is particularly desirable for air-conditioning systems because its temperature remains practically constant throughout the year, and is the mean average yearly temperature of the region where it is located. In the Pittsburgh region, its temperature is 53°. Surface water, of course, varies with the temperature of the region from freezing to 96°.

Groundwater has other desirable characteristics which make it economical to use. It is generally free of suspended matter, and appears clear and sparkling without filtration. It is also a more dependable supply in case of

drought, since it is less likely than surface water to show the effects of a drought that persists over a long period.

The water, however, is hard, as shown by the following chemical analysis which gives the figures both for the raw water and for the treated water:

	Raw Water ppm	*Treated Water ppm*
Chloride	32.0	28.0
Sulphate	144.7	140.2
Silica	14.0	12.0
Iron	2.0	.05
Calcium	65.3	28.5
Magnesium	15.0	5.7
Sodium and potassium	60.3	82.5
Alkalinity	106.0	108.0
Hardness	212.0	88.0
Iron and aluminum oxides	2.8	1.6
Total solids	430.0	410.0
Manganese	2.0	.25

Zeolite Softening

We use the zeolite method to soften the water. This, of course, requires a brine to regenerate it. To obtain brine, the Authority formerly used ordinary rock salt, purchased in carload lots. Now it has two brine wells which were drilled on Neville Island to make use of the natural brine which was known to be in this region. The production of natural brine has proved entirely satisfactory both as to quantity and quality. The savings through the use of natural brine over purchased salt amounts to $100,000 per year. Brine is found at a depth of approximately 1,270 feet. An interesting side-light is that natural gas is found at this same depth. This gas rises through the same casing as the brine and is captured by the Authority and used during winter months to heat its plant on Neville Island. These brine wells are located within 50 feet of the nearest water well.

The brine is pumped over an Infilco cascade aerator. To settle a large amount of the iron content from the brine, lime is added to a brine basin beneath the aerator. From there, the brine is decanted into an adjacent basin, from which it is pumped through a vertical-pressure sand filter with a capacity of 60 gpm, based upon a rate of 3 gallons per square foot per minute. The finished brine is discharged from the sand filter into a storage basin. Brine is also stored in a 100,000-gallon circular basin, formerly a suction reservoir for the high-service pumps.

To obtain the water supply from the gravel deposit under the Ohio River, on Neville Island, the Authority has 52 wells of which six are gravel-packed wells and 46 are driven wells. In addition, the Authority has installed a Ranney water-collector to increase its source of supply. This is a recently developed type of well, which is actually a series of horizontal wells feeding water to a central caisson from which it is withdrawn by pumping. To install it, a concrete-lined shaft was sunk by caisson methods to the water-bearing gravel. The bottom of the shaft was sealed with concrete and, by the use of hydraulic jacks, sections of perforated pipe were pushed radially outward for distances of several hundred feet into the water-bearing horizon through portholes in the shaft wells.

The water is pumped from these sources of supply to the softening plant on Neville Island by low-lift pumps. The water-bearing strata is approximately 70 feet below the surface of the ground, and the water is treated with chlorine as a safety precaution. Because of its high calcium content, the water is very hard. As mentioned previously, zeolite is used to soften it. The water is permitted to flow through the softening units until all the sodium in the zeolite has been replaced by the calcium in the water. The softening units are then backwashed by permitting the salt brine to travel upward through the zeolite beds and discharging this water into the river. The zeolite is then treated with brine solution to replace the calcium with sodium, so that it may be used over and over again to soften the water. The brine is flushed from the softening units with wash water and discharged into the river. This operation is necessary every six to eight hours for each unit.

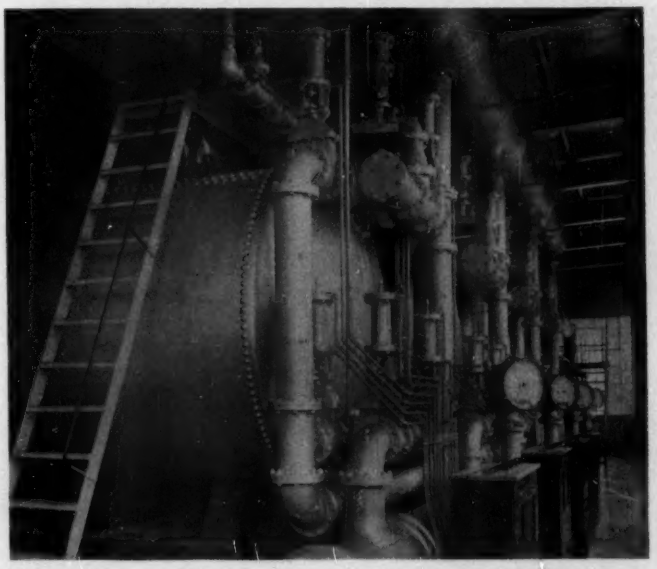
The softening plant consists of four Wayne horizontal-pressure softening units, each rated at 1.2 mgd, and four gravity-type units, each rated at 1.5 mgd, for a total capacity of softening of 10.8 mgd. All softening units are of the down-flow type, and we use natural greensand zeolite as the media for softening.

The units are made by the Water Treatment Engineering Corporation, Fort Wayne, Ind.

The pumping system of the Municipal Authority of the Borough of West View consists entirely of motor-driven centrifugal pumps, the plant on Neville Island, and two booster stations: the Bellevue booster station located adjacent to the Bellevue Reservoir, and the Hanover booster station adjacent to the McKees Rocks reservoirs. The Bellevue overflow is 1,182 feet, and the McKees Rocks overflow 1,087 feet above sea level.

Water is distributed by pumping directly into the mains, the surplus going into the reservoirs. The high-service pumps discharge into the transmission mains leading from the plant under the main and back channels of the river and up to the north and south territories. Under normal conditions, the two systems operate separately, one pump supplying the south side, and the other the north side. In case of emergency, they may be interconnected in part.

The Municipal Authority of the Borough of West View was incorporated under the Municipality Authorities Act of the Commonwealth of Pennsylvania. The acquisition of the original system and all extensions and additions which have been made to the system by the Authority have been financed through the sale of water revenue bonds.



This bank of Wayne zeolite softeners conditions water prior to distribution.

The photograph above is a view of the South Plant, looking over the influent structure. On the immediate left is the primary clarifier, behind which is the "semi" high-rate trickling filter. At the right is the secondary clarifier, which has a water surface 1 foot higher than that in the primary clarifier.

Sedalia, Mo., sewage-treatment plants show sanitary-engineering advances since 1911

By W. G. RIDDLE
Burns and McDonnell Engineering Company
Kansas City, Mo.

The new West Plant control building and digesters with the 20-year-old sprinkling filter in the foreground. The front section of the building is occupied by the gas-control and utilization room on the left, lobby at the center, and laboratory at the right, with digester piping and sludge pumps in the basement.

THE title, "Progress in Sewage Treatment Demonstrated at Sedalia, Mo.," appeared above an article on page 95 of the September 1929 issue of THE AMERICAN CITY. The article opened as follows: "The sewage-treatment plants in the City of Sedalia, Mo., provide in themselves a striking reminder of the progress which has been made in sewage treatment during the past 15 years."

At that time, construction had been completed on the West Plant, which had features that were modern for that day. Separate sludge digestion, special provision for trickling-filter ventilation and the mechanically cleaned sedimentation afforded definite contrast at that time with the older North Plant and still older South Plant.

The South Plant was constructed in 1911 to serve a population of 4,800, and consisted of a large, four-compartment septic tank and four contact biological beds operated on a fill-and-draw basis.

The North Plant was constructed in 1916 to serve a design population of 9,500, and represented modern design of that day. The plant included screen and grit chamber, Imhoff tank, dosing tank, sprinkling filter, and sludge-drying beds.

Thus, progress in sewage-treatment design for the preceding 15 to 20 years was well represented in 1929 by the three Sedalia treatment plants.

A new sewerage project, costing a little over $1,000,000, is now substantially completed. About 50% of this amount has been devoted to the three treatment plants, which have been modernized throughout.

The topography of an area is normally considered one of the controlling features of sewerage design, and its tendency to govern is graphically illustrated at Sedalia. The city is situated on a high area. Pronounced drainage courses originate within the city proper and extend outward radially. These facts are of significance from the standpoint of sewage treatment because: (1) the comparatively rough terrain requires that sanitary sewage from certain areas be lifted; and (2) since all available water courses originate in or near the city proper, there are no streams of appreciable flow; hence, all sewage must receive comparatively high-order treatment prior to release, if these streams are to be maintained properly.

Treatment Considered

The South Plant, about 40 years old in 1950, was, of course, completely obsolete. Hence, an entirely new plant was designed to serve an eventual population of 6,600. Serious consideration was given to the various possible modes of treatment appropriate for accom-

plishing the desired result. Particular thought was given to activated sludge, employing either mechanical or diffused aeration and trickling filters, either low or high rate. Analyses of over-all costs of owning and operating the various types of plants did not yield results conclusively in favor of any particular one of the treatment processes considered.

Inasmuch as the existing sprinkling filter at the West Plant was in excellent condition and of abundant capacity, it was considered ill-advised to change process at this plant. Furthermore, for reasons of ease in administration, it was deemed desirable to have a uniformity of operation in the three plants. The result of these and other deliberations was the employing of trickling filters at the three plants, utilizing recirculation on both the new and existing filters.

Features of the new treatment works which illustrate their modern character include the facilities for pretreatment, filter recirculation, and sludge handling.

Pretreatment

The South and West Plants receive flow from reasonably tight, separate sanitary sewers and do not have severe grit problems. At the South Plant a Chicago Pump Company comminutor is situated downstream from the plant by-pass weir and operates under conditions of controlled discharge. The control results from a Parshall flume located immediately downstream from the comminutor.

At the West Plant the existing screen chamber and equipment was in good condition and has been continued in service. However, provision has been made in the new metering flume for future installation of a comminutor when funds permit.

The North Plant receives flow from a semi-elliptical combined sewer 9 feet wide and 7 feet high. Although hydraulic controls have been included in the terminal structure where the outfall sewer to the plant takes off, considerable quantities of grit reach the plant. This problem was recognized in 1916, and a grit basin was included in the original plant.

Aerated Grit Removal

After comparatively thorough analyses of the various current designs of grit-removal practices, it was decided to employ the scheme developed by the Chicago Pump Company, that utilizes a section of typical aeration channel. Velocity control is provided to the "roll" by proportioning the quantity of air. The design perfected for this structure provides a nominal amount of pre-aeration for 30 minutes, requires a very small amount of head, has given what appears to be good removal of grit, and yields an apparently clean grit. So far, inasmuch as the laboratory is not yet in full-scale operation, only visible results can be reported. When available, analytical data will be published on the operation of this unit.

Grit-Washing Procedure

A comparatively novel procedure is currently employed for grit washing. The heavier contents of the aeration tank collect in a hopper and are ejected through a water-actuated eductor into an open 1-foot-wide channel equipped with low baffles where the heavier particles are, in effect, "sluiced out" of the eductor discharge and washed in the process. Overflow from the sluice channel is returned to the influent end of the aeration tank, so that there is no occasion for carry-over of grit into succeeding plant components.

The grit tank is preceded by a coarse screen having bars at 3-inch spacing, which is employed solely to protect the ejector from clogging. Downstream from the grit-removal tank the flow is comminuted and measured in a Parshall flume before continuing to the new primary clarifier.

Although the mechanics of accomplishing recirculation vary at the different plants, depending upon the character of existing settling tanks, the basic scheme employed is essentially the same. Flow is taken from the influent zone of the final tank and returned to the filter.

In the case of the North and South Plants, recirculation around the filter is inversely proportional to the plant flow and comprises pump make-up. The rate of recirculation is governed by the pump capacity in service, and can be varied from 1:1 to 2:1 on the average design flow.

At the West Plant, where the sprinkling filter is dosed by a siphon, recirculation is manually controlled and is performed at a uniform rate for a particular adjustment of the valve on the recirculation line. The filter-effluent pumps operate on float control in response to variations in plant flow. The filters are equipped with Carter rotary distributors.

At the South and West Plants, final clarifier sludge is returned by gravity to the influent structure downstream from the raw-sewage measuring flume. All sludge at these plants is removed from the primary clarifier only by Domestic plunger-type pumps, with consequently lower total-moisture content than would be present if sludge were pumped from both primary and final tanks. Based on previous experience, it is also expected that increased removal of BOD will be obtained in the primary basin as a result of the flocculating effect of the final tank sludge. The plants have three primary and one final settling tank, all equipped with Dorr sludge-removal mechanisms.

Sludge Handling

Although separate digestion has been practiced at the West Plant since its construction in 1929, the digesters were not covered and of course were unheated. At that time, the very fact of digestion tanks separate from sedimentation capacity comprised a departure from conventional design. And, although at that time digester tanks in northern latitudes were being covered, heated, and equipped for gas utilization, this had not yet been established as a justifiable procedure for plants farther south.

Representative of the progress which has occurred in sewage treatment during the past 20 years, the three plants

(*Continued on page* 000)

Summary of Basic Design Data Sewage Treatment Plants, Sedalia, Missouri

	South Plant	*North Plant*	*West Plant*	*Total*
Population	6,600	8,400	10,000	25,000
Industrial equivalent		1,600	1,500	3,100
Total design population	6,600	10,000	11,500	28,100
Hydraulic Load:				
Design flows (mgd) Average:	0.5	0.75	0.5	1.75
Maximum	1.5	2.25	1.5	5.25
Minimum	0.25	0.375	0.25	0.875
Average-Day Organic Load:				
5-day BOD to plant, lbs.	1,100	1,670	1,920	
5-day BOD to filters, lbs.	770	1,170	1,340	
5-day BOD to filters, lbs./cu.yd.	0.44	1.22*	0.358	
5-day BOD to filters, lbs./sq.ft.	0.098	0.264	0.073	
Average-day hydraulic load to filters (based on 1:1 recirculation) MGAD	5.8	15.5*	2.4	
Digester loading, cu. ft. per lb. volatile solids added per day	22.3	22.6	22.6	
Open sludge-drying beds, sq.ft./cap.	1	1	1	

*New high-capacity filter only.

What Could Happen in Philadelphia

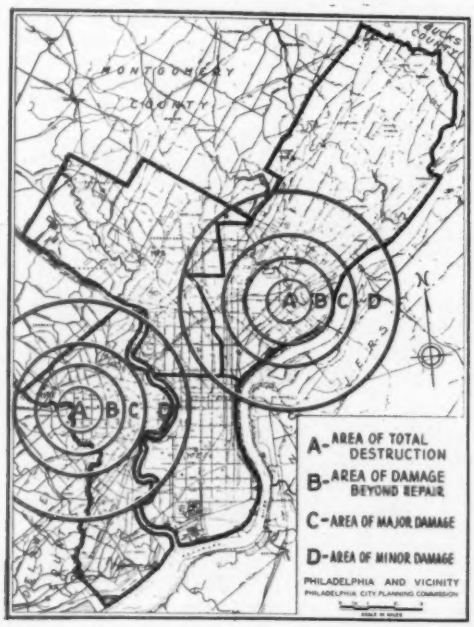
A dramatization of how an efficient fire department might function following an atomic-bomb attack

THE Philadelphia Bureau of Fire is probably one of the best equipped in the country. Nearly everything has been replaced not only since World War II, but mostly in the last two years. There are 73 engine companies, 29 ladder companies, 4 rescue squads, 5 high-pressure companies, and 3 fireboats, all new. There were 17,993 alarms answered in 1950.

On the first day of a certain month in a fateful year, word came of an all-out attack on a small European nation. The very next day the Mayor of Philadelphia directed that all regional-control centers be manned around the clock, and the Chief Engineer (Fire Chief) ordered that on all air-raid warning signals one fire captain be sent to each control center to represent the Bureau of Fire.

The 13th day was cloudy with some scattered rain; maximum visibility 2½ miles. At 5:30 a.m. the Mayor received warning of an impending air raid, and telephonic information from the Governor that enemy planes were being tracked in the general direction of the Philadelphia-Camden area, and that segments of the armed forces were engaged.

At 5.31 a.m. the yellow air-raid signal was received over the Bureau of Fire public-address system and secondary circuits (7-7-7 four times). Officers on duty at various units started to comply with the civil-defense plan in relationship to their particular position or unit.



Two bomb bursts. The left-hand circles are in west Philadelphia, and the right-hand circles in the northeast section.

At 5:36 a.m. the red air-raid signal came over the public-address system, then over the fire alarm, which is 8-8-8 four times, preceded by 15 blows. The air-raid sirens sounded. All apparatus in stations was dispersed in accordance with plan—except that the regular plan contemplated moving on the yellow alarm with probably 45 minutes *before* the red alarm.

Two Bomb Bursts

At 5:45 a.m. there was a bomb burst followed in a few seconds by another—and with fatalities and casualties in the hundreds of thousands. After five minutes, Fire Bureau personnel and equipment still serviceable completed the dispersal operation. The damage to the Fire Bureau equipment from the two bursts was as follows:

Destroyed
- 2 engine companies

Damaged Beyond Repair
- 7 engine companies
- 4 ladder companies
- 1 rescue squad

Major Damage
- 7 engine companies
- 3 ladder companies
- 1 rescue squad
- 1 high-pressure company
- Communications Central Control

Minor Damage
- 20 engine companies
- 8 ladder companies
- 2 high-pressure companies
- 1 fireboat

Undamaged
- 37 engine companies
- 14 ladder companies
- 2 rescue squads
- 2 high-pressure companies

At 6 a.m. reports from battalion chiefs of many fires in the northeastern section and west Philadelphia. At 6:12 a.m. the Fire Chief asked County Control Center for warden service to extinguish small fires, and mutual aid companies for all fire personnel and apparatus, especially with water tanks.

At 6:30 a.m. Command of Operations west Philadelphia reported to Fire Chief, after hasty survey, that most buildings were down and afire, rubble blocking highways from Cobbs Creek on the south, and very little water. Similar report from northeastern section.

At 6:50 a.m. Command in west Philadelphia reported damming Cobbs Creek, Indian Creek, and Indian Creek Run to get water for fire-fighting. Fireboats 1 and 3 moved into area on Schuylkill River. Chief Pilot ordered to get tugs to move barges with auxiliary pumping engines to five specific areas and to notify exact location when set for service. High-pressure lines ordered laid across the Walnut, Chestnut, and Market Street bridges with 2½-inch hose lines attached. Fires were extending, being fanned by a mild wind from the southwest, using all equipment with water tanks as a continual patrol to back up fire lines and kill in their incipiency any fires starting. They were being shuttled between Schuylkill River and Park Lakes to be reloaded with water. Fire storm developing. Strong inrushing winds from all sides, increasing to hurricane velocity to such an extent, trees, poles, and weak buildings were being blown down.

At 6:53 a.m. Command in northeast reported little water

above Tioga Street to area of Frankford Creek, which was being dammed to get drafting depth. High-pressure Stations 1 and 2 pumping into the system, which gave good water supply on the southeastern and western sides of the perimeter as far as Tioga Street. Fireboat 2 and pumper barges and river tugs using mounted nozzles on the river front, setting up a second fire line about a mile to rear of first—using water tanks on apparatus for controlling fires between lines. High-pressure was used on Lehigh Avenue and Front Street as water curtain. Mild wind carrying fire toward river in a northeasterly direction.

At 9 a.m. west Philadelphia reported wind increasing out of the southwest, starting to break fire storm into an extending fire in a northeasterly direction. Had to withdraw fire lines to the windward due to the heat and lack of enough water. Many badly burned and injured survivors were found in the perimeter. Northeastern Command reported moving tugs across river to cover the New Jersey waterfront—also oil reservation on Petty's Island—due to heat and flying embers.

At 9:18 a.m. Fire Chief requested stand-by—be ready to evacuate all hospitals and institutions west of the Schuylkill River—in the northeast above Diamond Street, east of Broad Street to City Line, Cottman to Delaware River.

At 9:30 a.m. he reported to County Council that 717 off-duty personnel of various ranks and 880 auxiliary firemen failed to report. It was estimated that there were 372 regular personnel and 456 auxiliaries killed, and further that 345 regular personnel were injured and 424 auxiliaries. Two battalion chiefs, 9 engine companies, 4 ladder companies, 1 rescue squad company did not report for assignment. All were in the bombed areas. Water supply bad, particularly in west Philadelphia. Have the advantage of the Delaware River and high-pressure in the northeast. Fires extending northeasterly, wind velocity increasing. Communications at 21 stations destroyed, at 14 partially, and 46 not damaged. Two-way radio in service during entire period.

At 10 a.m. Fire Chief reported to Director County Civil Defense, "In view of conditions as reported by deputy chiefs in command of operations in the field, I urgently request the assistance of approximately 700 more engine companies—400 to strengthen fire lines in west Philadelphia—200 to strengthen fire lines in northeast where weak—100 in reserve or to augment regular fire-station assignments to cover other fires in city outside damaged area."

All reports from both division commands at fire areas continued to be bad throughout the entire day. Mutual aid companies arrived continuously and were assigned. Blocks of buildings were taking fire and melting like a piece of butter on a hot pan. Fire lines and the command post in west Philadelphia had to retreat and be re-formed due to tremendous heat. Schuylkill River was set as the final stand. The fires continued to burn unabated throughout the night with uncontrolled fury.

The Next Day

At 10 a.m. (the 14th) Command west Philadelphia reported fire expending itself. Lower Schaylkill River oil refineries, Naval Base, and industries out of danger. Philadelphia General and University of Pennsylvania Hospitals considered safe. Low-pressure water service improving for fire fighting.

At 11 a.m. the Fire Chief reported to Command of Operations in field: "If considered safe, permit one-half of personnel to get eight hours of rest. Then the balance—continue to work this schedule until further orders." At 2 p.m.: "As both fire areas have entered overhauling stages, request you release whatever mutual-aid companies you can safely spare."

The following day (the 15th) the Fire Chief, after personal survey of conditions, released all mutual-aid companies. Fire areas were being overhauled by regular and auxiliary personnel; the regular units returned to their stations. This overhauling required many weeks.

Fighting Mass Conflagration

THE FOREGOING dramatization—based largely on Philadelphia's recent civil-defense-test exercise*—will never, it is hoped, have to be transformed from fiction into fact. But over the years at least five cities have had peacetime disasters of wartime intensity.

The closest approach to an atom bomb explosion in urban United States was the Texas City blasts at 9:15 a.m. and 1:10 a.m. on April 16 and 17, 1947, when two ships carrying 880 tons and 960 tons of bagged ammonium nitrate fertilizer exploded.

Losses added up to 552 lives, 3,000 personal injuries—one casualty out of every four residents. Property damage was more than $50,000,000, exceeded only by the fires of San Francisco in 1906, Baltimore in 1904, Boston in 1872, and Chicago in 1871.

Only by informed preparation can the loss and horror of an A-bomb can be held down. The preparation starts with special training of the regular fire-fighting force, the organization of a large corps of persons trained to fight small fires (fire guards), and the public.

Special training includes Red Cross first-aid, techniques for fighting small fires, protective measures against radiological hazards, and other fire-fighting measures to meet enemy attack.

Much can be said pro and con as to the need of auxiliary firemen. New York City, for instance, is proposing two auxiliaries for each regular fireman. They will be organized into engine companies with their own engine and personnel in quarters separate from the departmental units. Another school of thought argues that all additional fire department personnel should be regular members of the departments. Many fire departments are now strong in manpower, but for departments which happen to be weak, it is believed that these should be augmented with the proper changes of personnel both for peace and war-time service and all other fire fighters organized into teams of fire guards. Fire guards would be organized among the regular occupants of buildings and would provide a much larger fire-fighting force than could be recruited into a public fire department. The fire guards would be expected to attack fires first and leave the public fire companies free to make attacks on conflagrations at strategic points.

Instruction of the public is aimed at preventing the disorderly flight of terrified civilians with consequent clogging of streets and highways.

One of the problems to consider is how to fight fires without water. Obviously, broken mains or pumps may destroy city water pressure. Fortunate is the city with river, lake, and even swimming pools, and private wells. The point is to map all points where water is and, if it turns out not to be there, where else it is likely to be available. A little study will show that a surprising amount of water is available in various locations, but where water is not available, it may be possible to provide special tanks and reservoirs to store water for fire fighting.

How will it all work out if the test comes? The foregoing dramatization attempts to suggest some answers.

* See page 103 of the April issue.

DIESEL PRODUCES SAVINGS OF

$35,000 in 10 Months

At Newton Falls, Ohio, a supercharged diesel does the work of five older units, cuts operating costs

OPERATING 24 hours a day since January 1949, an 8-cylinder, 1,440-hp, supercharged Superior diesel engine and a 1,000-kw Ideal electric generator have taken over the job of five smaller diesel generator units in the municipal power plant at Newton Falls, Ohio. By this conversion, Newton Falls raised its plant efficiency from 11.8 kw to 13.54 kw per gallon of fuel used. The older engines operate only during peak-load periods and during "down" time for the new engine, thus permitting the new diesel to operate normally at 50% to 80% of its full load capacity.

Operating costs have been reduced enough to produce a substantial profit. Latest operating reports indicated net profits of almost $35,000 for the first 10 months of 1949 in the face of fuel-oil prices that have doubled since 1940, when the plant began generating electric power.

During the 10-month period, the new diesel operated a total of 6,468 hours and produced 4,121,700 kw-hrs. of energy. The total for 1949 is expected to be well over 5,000,000 kw-hrs. During the previous nine years, the entire plant output from the smaller engines amounted to 25,110,000 kw-hrs.

Dusk-to-Midnight Service in 1904

The 148-year-old City of Newton Falls, located 9 miles west of Warren, Ohio, was first supplied with electric power as a village in 1904 by a small privately owned steam plant of about 100-kw capacity. This plant gave dusk-to-midnight service to residential consumers. By 1908 the Hydro-Electric and Gas Company had been organized and had a contract to supply power generated from hydro-power units located on both the east and west branches of the Mahoning river betweeen which the town is located.

In the east branch three vertical water wheels, driven by a 12-foot head from a dam 150 feet long, provided a capacity of 300 kw. Another 300 kw was available from three more vertical water wheels driven by an 18-foot head of water from a dam 60 feet long in the west branch of the river.

In 1911, The Trumbull Public Service Company was incorporated and supplied the village with power until it was taken over by the Ohio Public Service Company in 1921. The latter company provided power for 19 years, during the last three of which litigation and agitation for a municipal light plant

Operating 24 hours a day since January 1949, this 1,440-hp, turbo-supercharged Superior diesel engine normally supplies most of the electric power of Newton Falls, Ohio. Five smaller diesels are available for peak load demands.

resulted in a court decision permitting the village to build and operate its own plant.

Municipal power was requested by an increasing number of civic-minded residents, until today this plant serves 95% of the community's customers. Diesel power was used from the start. The first three units, each of 200-hp capacity, produced a total of 1,237,200 kw-hrs. the first year. In 1947, power requirements had increased to 4,206,700 kw-hrs., and two more units were purchased to increase total capacity to 1,373 kw. Rapidly climbing peak loads in the latter part of 1948 indicated that another power unit would soon be needed. Although the principal considerations in the decision to buy a sixth diesel capable of handling the whole power load were improved efficiency and lowered operating costs, there were a few other lesser factors to consider.

Floor-Space Problem

The plant had room for only one more unit. Unless it were comparatively large, the next increase would mean enlargement of the power house or disposal of one or more smaller units. Fortunately, with the Elliott Company turbo-supercharger, the 1,440-hp Superior engine and generator occupy but little more floor space than the 200-hp units.

Diesel fuel is stored in two underground tanks of 10,000 gallons capacity each, and a 15,000-gallon outdoor tank. A 20-gpm Fairbanks-Morse pump transfers fuel oil to 1,000-gallon day tanks located in concrete pits alongside the building. These tanks are filled twice daily. Purolator fuel-oil filters are checked every three weeks by the three-man maintenance crew.

The lubricating system is of the dry-sump type, equipped with a Fram strainer and filter. All filtering equipment, engine-oil sump tank, lube-oil cooler, strainer, and motor-driven lube-oil pump are easily accessible in the basement. The lube-oil pump is a positive-displacement type that circulates oil through the filter at 500 gallons per hour. New oil, which is an SAE-30 grade, is stored in 55-gallon drums.

Oil Consumption

Latest inspections showed the original oil to be clean and free from impurities. Low consumption of lubricating oil has produced an approximate net saving of $1,100 for 11 months of operation as compared with the operation of the older engines. The lubricating oil required from January to September of 1949 was 2,606 gallons as compared with 6,104 gallons during the preceding 12 months. With the new engine, 4,500 rated horsepower-hours were obtained per gallon of lubricating oil.

The cooling system at Newton Falls is reported to be the first of its kind in Ohio. Engine-jacket water and lubricating oil are both cooled by raw water from the river. The water flows by gravity from the river through a 24-inch pipe to a sump under the pump house. The bottom of this sump is 4 feet lower than the bottom of the river. Three turbine pumps, of 5-hp capacity each, circulate this water through four vertical, openhead Vogt-type coolers with enough capacity for engines with an output as high as 5,000 hp. Three of the Vogt coolers are used for the engine-jacket water and the fourth cools water for the shell-and-tube type of lube-oil cooler. During summer operation, when cooling requirements are increased, the raw river water enters the coolers at approximately 70° F, and leaves at 105° F. The jacket water enters the coolers at 150° F, and returns to the engine at 135° F. The river water passes from the cooler to a discharge chamber from which its returns by gravity to the river. The engine-jacket water is circulated by three 450-gpm pumps.

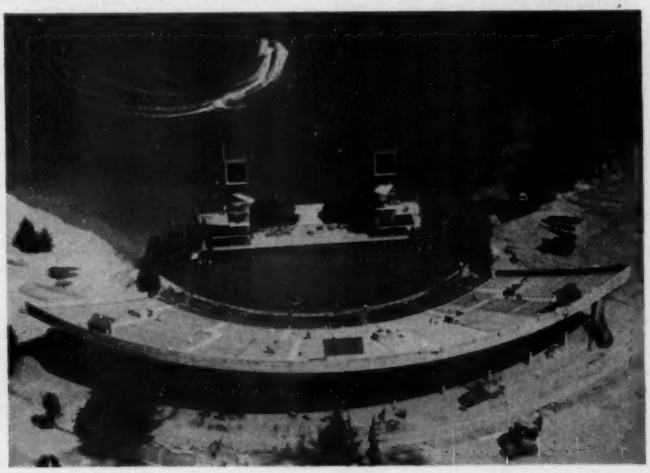
T. S. Kistler is superintendent of both the power plant and adjoining water works. Consulting engineers for the Newton Falls installation were Carl J. Simon and Associates, of Van Wert, Ohio.

Principal Equipment

Diesel—Superior Engine Division, National Supply Company (8OEX-8, 14½ by 20 bore and stroke, 360 rpm, 1,440 hp)
Superchargers — Elliott Company (Buchi turbo-charger)
Generator—Ideal Electric Company
Switchgear—Lake Shore Electric Company
Governors—Woodward Governor Company
Silencers, intake—Air Maze
Silencers, exhaust—Maxim Silencer Company
Fuel oil filters—Purolator Products, Inc.
Lubricating oil filters—Fram Corporation
Heat Exchangers—Henry Vogt Machine Company
Lubricating oil cooler — Graham Manufacturing Company
Exciters—Ideal Electric Company
Pyrometers—Alnor, Illinois Testing Laboratory
Jacket water circulating pumps—Ingersoll Rand — Cameron Pump Division
Fuel-oil transfer pumps—Fairbanks, Morse & Company
Overhead crane — Chisholm-Moore Hoist Company

Seattle's "Aqua Theatre"

FINISHED in record time for Seattle's Seafair celebration in August 1950, the aquacade structure on Green Lake is being readied for new water events to be held during the 1951 season. The structure originally was conceived as a temporary one, but the City Council was convinced by Seattle's far-sighted Park Department to appropriate additional funds so that permanent facilities could be built. Seattle's Seafair itself will be a permanent event every August, and performances at the Aqua Theatre will be a major attraction. Final cost of the structure was $247,000. The architect of Seattle's Aqua Theatre was George Wellington Stoddard, of Seattle.



What Good is Pre-Aeration In Sewage Treatment?

PRE - AERATION provides four benefits: It gives the sewage a positive or oxidative septicity. It removes entrained hydrogen sulphide and carbon dioxide gases. It aids in grease separation. It encourages mechanical and biological flocculation of solids, thus enhancing the general stabilizing treatment of the sewage.

Frank Roe, Development Engineer, The Carborundum Company, Perth Amboy, N. J., made these four points at the recent Federation of Sewage Works Associations meeting held in Washington, D. C. Mr. Roe's conclusions were based on a study of 38 plants throughout the United States which use pre-aeration in their sewage treatment.

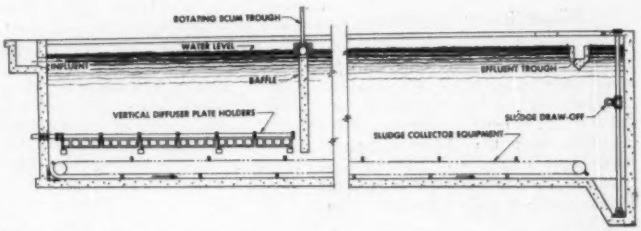
Porous diffuser media, he found, was still the most efficient method of dispersing air, superior to perforated pipe because of the smaller bubbles formed. Maintenance of porous ceramic diffusers is low as long as the air supplied is clean and maintained with few interruptions. Furthermore, the ceramic diffusers have the advantage of freedom from corrosion. From an efficiency viewpoint, he found no difference between diffuser plates and diffuser tubes, except when grit separation is included. In those cases, the tubes prove superior. The tubes have an operating advantage in that they can be removed without dewatering the unit.

Use Increases

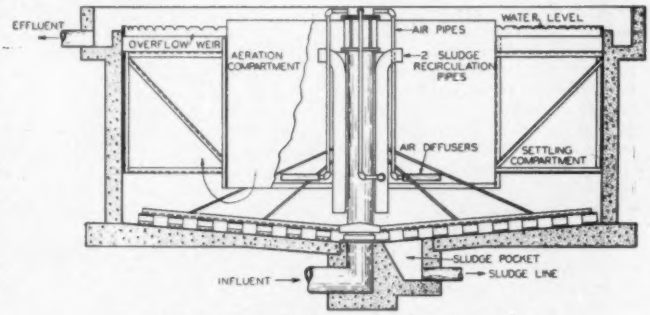
The increased usefulness of pre-aeration, he pointed out, can be reflected in the new treatment units that have been designed giving greater importance to it. One of the earliest is a product of the Pacific Flush Tank Company. It combines aeration and settling in a single, straight-line tank. The aeration compartment is baffled and equipped with vertical diffuser plates along both side-walls. The tank has sludge-collector flights that travel the full length of the tank in the direction of flow.

Another unit that draws heavily on pre-aeration has been developed by Process Engineers, Inc., and has been used extensively in the West. It uses a central inlet to a circular aeration compartment. The circular column holds the diffuser tubes radially and turns them around in the tank with the sludge-collecting mechanism. Both flocculation and oxidative treatment of the solids take place in this compartment. The sewage flows downward and from there to the settling compartment, where the flow goes upward over a peripheral wier. Sludge can be returned from the central collecting zone at the bottom to the top of the aeration compartment.

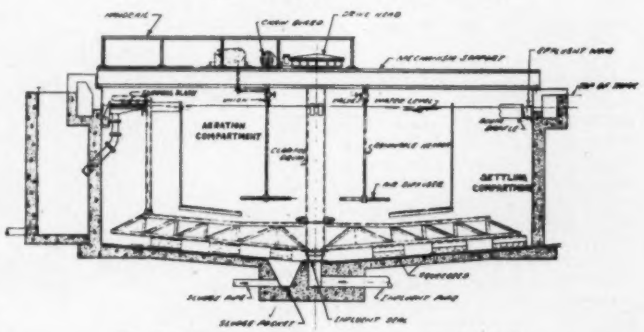
A third unit has been developed by



Rectangular tank for Pacific Flush Tank's pre-aeration and sedimentation unit.



On the West Coast, the Process Oxidator is popular.



The Dorr Aerator-Clarifier also uses a circular tank.

the Dorr Company, Stamford, Conn. This also is a circular aerator-clarifier, but has fixed diffuser tubes in the central aeration compartment. To minimize short-circuiting, the aeration compartment has been provided with a partially closed bottom.

All three units, Mr. Roe explained, can handle a wide range of sewage or industrial waste, meeting a flexible range of results. The units can be placed in series where a high degree of treatment is needed.

Yeomans Brothers Company and Lakeside Engineering Company also offer circular tanks that have peripheral inlet channels with suspended diffuser tubes to aerate the incoming sewage.

Frequently, pre-aeration can be supplied in an existing plant by installing diffusers in a channel leading to the primary settling tanks. Some grit-separation tanks have been supplied with suspended diffuser tubes also. Mr. Roe stated, however, that this does not come within the usual conception of pre-aeration.

The amount of air required for pre-aeration should be sufficient to agitate and maintain all solids in suspension throughout the unit. This varies from 1.0 cubic feet to 4.0 cubic feet per lineal foot of tank. Except for unusually long periods, these requirements will be between 0.05 and 0.15 cubic feet per gallon of sewage treated.

These amounts provide good coagulation and flotation of grease solids. They also provide ample oxygen for arresting a negative potential or reducing condition in raw sewage. If entrained gas is difficult to remove, the rate of diffusion will be on the high side.

Light on Hidden Cost Can Ease Budget Troubles

By ALBERT PLEYDELL
Albert Pleydell Associates, Inc.
New York, N. Y.

IN MANY communities, this is budget time. The finance committee is deep in the annual job of making both ends meet. Department heads are asking for more money to meet salary increases and high cost of materials.

The mounting total tells the committee members that the blue pencils must be wielded mercilessly, for the final budget must fit within a pretty definite sum. Even where the law does not fix a ceiling, tax rates simply can't be boosted indefinitely.

After the hearings are over, the budget will be balanced, of course. It always has been, and this year will be no exception. The committee will heave a collective sigh. . . . That job is over until next year. Or is it?

The inflationary and other war-caused pressures that led the department heads to seek much higher appropriations will still exist. In fact, as the months roll by, these pressures will probably grow more and more severe. True, some counter-influences will be at work. Military demands may syphon off many of the regular employees. Labor shortages may prevent the filling of vacancies. Inability to buy some items may offset in part higher prices for what is obtainable.

Will accruals from vacancies, and forced savings from inability to purchase some items, prove sufficient to ease the strain on the budget? Probably not. The full effect of last year's spectacular rise in the cost of raw materials has yet to be fully felt in the prices to be paid for consumer goods. No, the year ahead won't be one of diminishing pressure on local budget. Quite the contrary.

Up to this point we have been looking at the picture from the point of view of public officials. What about the taxpayers? They are faced with an inexorably mounting federal tax burden. As the load increases, they are likely to become more aware than ever of their local tax bills. It is reasonable to predict that demands for local governments to economize, to "pull in their belts" for the duration, will be heard with greater frequency. Such demands may be translated into action through intensified work by civic and other taxpayer organizations.

These trends in 1951 spell one sure thing—budget troubles in 1952. What should be done? For there is something that can ease the stress. It is the item of clerical costs or—and here's the secret—*the cost of clerical work.*

This item, like an iceberg, is mostly out of sight. We see it when those engaged in clerical work wear such obvious labels as clerk or typist. It is when clerical work is performed by persons with such titles as patrolman or fireman, parole officer or court attendant, storekeeper or laborer, supervisor or director, caseworker or interviewer, that it is often well out of sight.

When one asks a department head the question, "Is all of the clerical work in your department necessary?" The answer is most likely to be "Not only is it necessary but we need a lot more help. We keep falling behind." Is this the right answer? Under present procedures it may well be. Heroic measures are needed if very much is to be done about the rising cost of clerical work. To examine in detail every single job that involves clerical effort is likely to prove too slow and too costly.

Time enough for details later on. What is needed first is to look at clerical work from a bull's-eye, instead of a worm's-eye, point of view. Look across departmental lines. See how much red tape is caused by the rules of such departments as finance, purchase, budget, civil service. Then look carefully at those departments whose primary functions are operational, rather than white-collar service. In highways, for instance, the snow loaders may be modern; in sanitation the compactors may be this year's model; in sewers the treatment plant may be the last word in efficiency. Yet, Charles Dickens might be right at home among the records and procedures that control the work of those same departments.

Naturally, the service departments shouldn't be overlooked. Some of them may be found to be far ahead of the operating agencies in their efficient and economical use of clerical work. But others will have some sacred cows, relics of prior efforts to achieve economies. Look twice at any sacred cows! Very often they are merely screens concealing systems that involve a startling amount of really unnecessary clerical work.

But, you say, business machines and office equipment are joining critical materials in the mobilization effort. How could we hope to do very much about clerical costs if we can't get new equipment?

The answer? Don't forget the inkwell, the typewriter, and the duplicator. They may not solve every problem, but they can perform miracles. Besides, office equipment will probably be available for quite some time. Certainly, it will take a long war to dry up that field entirely.

There is an important by-product that often rewards those who tackle clerical costs, a by-product sometimes far more valuable than the direct results. This is the astonishing improvement in morale and efficiency of the operating personnel that flows from better and simpler clerical routines. It is only human to chafe at archaic, cumbersome, or overly complicated procedures that keep one from doing one's best work. And it is also human to take a new interest in a job that has been freed of such limitations.

Caterpillar tractors in the Blanchard Disposal Yard. One brings in new fill, and the other levels off filled material.

Why Los Angeles County Adopted

Cut-and-Cover Refuse Disposal

By C. E. ARNOLD
County Engineer
Los Angeles County

EARLY IN 1948, the Board of Supervisors of Los Angeles County, Calif., inaugurated a program designed to eliminate burning dumps and the public nuisances created by indiscriminate dumping, and to require that all dump operators conform to strict regulations for "cut-and-cover" or "continuous fill and cover" operation. The County Engineer has been made responsible for coordination of the activities of all County departments concerned with refuse disposal, in order to accomplish these objectives.

Generally speaking, refuse-disposal sites in the unincorporated territory of Los Angeles County are situated on properties of marginal value. Such lands are suitable only for stock grazing or similar purposes, and it is only by reclamation of these lands through cut-and-cover operations that the properties can be made suitable for other developments, and be an asset to the communities in which they are located.

Under the new program, operators of such disposal sites are required to conduct their operations in accordance with conditions and limitations set forth in a waste-disposal permit issued by the County Engineer.

Prior to the issuance of this permit, the operator must obtain a land-use permit from the Los Angeles County Regional Planning Commission, post a faithful-performance bond, and furnish the County Engineer with a detailed plan of operation, prepared by a civil engineer. This plan must show the existing topography of the site at suitable contour intervals, the proposed finished grade contours, and details of necessary improvements, such as fencing, water-supply lines, fire hydrants, accessory buildings, and access roads.

Inasmuch as the compaction of the refuse material and the handling of earth cover are directly dependent on the adequacy of the equipment used, operators are required to specify the type and size of mechanical equipment, and the methods of operation to be used.

Operating Details

At the Blanchard Street Disposal Yard, for example, all types of refuse except garbage are accepted. The rubbish is either deposited in a trench excavated for this purpose or spread over a prepared face. In either case, the rubbish is deposited in thin layers and thoroughly compacted. After compaction, it is covered with earth and again compacted. When the fill material has reached an elevation of 2 feet below the finished grade, a layer of compacted earth is placed over the material to bring it up to the final grade. It is not uncommon for the operator at this and other disposal yards under supervision of the County Engineer to handle 500 or more truckloads of rubbish per day in this manner.

Satisfactory Operation

In the handling of such large volumes of material, this type of operation has proved most satisfactory. First, it has been found to be economical, enabling the operators to dispose of rubbish at an average cost of less than $1 per ton, including the operator's profit. In the second place, this operation compacts refuse material from a loose density of about 300 pounds per cubic yard to more than 1,000 pounds per cubic yard. This density produces a stable fill and reduces future settlement to a minimum. Such fills are expected to make the property satisfactory for various uses, such as parks,

playgrounds, golf courses, and scenic areas along public highways.

To develop a comprehensive program for the disposal of rubbish in the unincorporated territory of Los Angeles County, the County Engineer was ordered by the Board of Supervisors to prepare a report early in 1949. In compliance, the writer submitted a report entitled, "Report on Rubbish and Refuse Disposal for Los Angeles County," dated April 29, 1949. This report included a factual survey of conditions prevailing in all of the 44 cities and more than 100 unincorporated communities of the County, and made the following recommendations:

Recommendations

1. That approval be given to the procedural requirements for establishment and operation of rubbish and refuse-disposal facilities.
2. That the following procedures and facilities be set up for the disposal of rubbish and refuse throughout the metropolitan area:
   (a) Transfer stations, major salvage depots, major dumps, and rural community dumps.

   The report outlined tentative locations and a plan of operation for such facilities.

   (b) In general, the sites for transfer stations, major salvage depots, major dumps, and rural community dumps shall be secured by purchase or lease by the County or the affected cities.

   (c) After the site has been secured, the County or cities affected should enter into a franchise or contract arrangement with private parties for construction of required facilities and for operation in accordance with general plans, specifications, standards, and regulations of the County.

   (d) In the over-all plan of the County, existing facilities for collection and disposal of refuse should continue in use wherever possible, and any incinerators installed by cities should be incorporated into the program. Insofar as the County is concerned, however, the construction of public incinerators should be delayed until such time as future development may require their use.

3. That funds be provided in the budget for the fiscal year 1949-50 to enable consummation of a schedule that was itemized in the report, and which included:
   (a) The acquisition by purchase or lease of three major dump sites which are strategically located and suitable for the purpose. The estimated cost of lease or purchase of these sites was $450,000, and the capacity was estimated as sufficient to serve the entire metropolitan area for the next 20 years or more.
   (b) Purchase of 10 refuse-transfer stations located in unincorporated communities which are faced with an acute problem of refuse disposal.
   (c) Purchase and improvement of 18 rural community dumps in outlying areas where considerable indiscriminate dumping has taken place, creating a public nuisance and public-health problem. The estimated cost of these sites was $48,600.

The proposed expenditures were based on the assumption that operations would be conducted by private parties under franchises granted by the Board of Supervisors. This report was approved by the Board of Supervisors, and an appropriation of $485,000 was made in the 1949-50 budget to cover the cost of acquisition of one major dump site and the acquisition and improvement of three transfer-station locations.

The Blanchard Street Disposal Yard is not directly affected by this report. It is, however, one of 16 privately owned dumps being operated under our supervision until the comprehensive program can be activated. We anticipate that this disposal site will be continued to completion, and that one of the major dump sites will be available in the same vicinity by the time its capacity is exhausted. The completion of the Blanchard Street operation will reclaim land adjacent to the Los Angeles County Sheriff's and Juvenile Hall facilities, which will enhance the appearance and usefulness of these areas. Therefore, the successful operation of this project will enhance the value of County properties in addition to reclaiming land which otherwise would be practically valueless.

Courses For City Supervisors In Boulder and Columbia

BOULDER, Colo., and Columbia, Mo., are two cities that have recently reported great gains in improved human relations and more efficient and economical municipal government as a result of schools for department heads and other supervisors of the city administrations.

In Boulder, City Manager Bert Johnson arranged for Leo C. Riethmayer, associate professor of political science at the University of Colorado, to conduct a 17-week course in "The Techniques of Municipal Administration." The course dealt both with general principles and their application to specific problems of Boulder's city government. According to Manager Johnson, the course and the opportunities for give-and-take discussion helped create a unity of purpose among those attending. Other benefits included: improved employee morale, fewer jurisdictional disputes, more time for planning, greater attention to managerial problems by giving the city manager more assistance, prompter and better departmental reports, organizational changes, simplified procedures, reduced paper work, reduced costs, and better public relations.

The classes were held in the Central School library each Wednesday from 3:30 to 5:30 p.m.—one hour on city time and one hour on the employees' own time. At the conclusion of the course the supervisors and their wives, together with members of the city council and others, were guests at a dinner given by the city.

In Columbia, City Manager Bill N. Taylor is continuing to carry on and apply his broad interest in human relations and the personalizing of local government. Excellent results are being achieved through emphasis on individual participation and discussion during the twice-a-week courses started a year and a half ago by Mr. Taylor, soon after he became Columbia's manager under a new city charter.

A start was made with 18 department heads and top supervisors; later those on lower levels of authority were brought into the classes, which now have about 36 members.

The subjects for discussion, always sent out before class day, have been related to the day-to-day jobs of the participants, and concerned primarily with the broader question of human relations.

Some of the subjects that have been discussed are the supervisor's responsibilities, merit rating, giving instructions and orders, maintaining discipline and reprimands, complaints and grievances, counteracting discontent, handling personnel problems, personnel rules and regulations, morale and teamwork, housekeeping and care of materials, equipment and work spaces, success and leadership, and the supervisor as a part of management.

The meetings are led by different members of the class, in order to provide additional training in leadership and to impress them with the fact that the meetings are for their own benefit.

When the discussion of a subject is completed a record is made of the findings and recommendations; these records are then mimeographed and given to the conferees for future reference.

How to Play Host to the Army

Fayetteville learned the hard way in dealing with a big army post on its outskirts. Now it points the way to good community-military relations

By J. O. TALLY, Jr.
Mayor
Fayetteville, N. C.

AMERICA is building an Army of at least 3,500,000 men, and increasing its Navy, Air Force, and other armed forces proportionately. Future events may cause great expansion of even these large plans. Within the next two years scores of cities and towns in America that have been thoroughly civilian in composition will become garrison or semi-garrison cities and towns.

What happens when a city finds its normal civilian population half-again expanded or doubled by a newly established fort or base?

How does a town react to several thousand soldier or sailor residents?

How can city officials plan to expand normal services and add new ones to prepare for such a new community complexion?

These questions have been vital to city officials and civic leaders in Fayetteville in the last few years; the search for answers has been intensive and sincere. For this situation, which is prospective now for many American communities, has been actual in Fayetteville for 10 years, and much that was speculation has become experience.

Negro servicemen of the V Corps live comfortably with their families in Fayetteville's Elliott Homes. This model development covers 10 acres and provides modern housing for 118 Negro families

A Civilian Town Overwhelmed

For about a generation before 1940, there was a small military post 10 miles from Fayetteville named Fort Bragg. Its complement was usually about 3,000 officers and men. Fayetteville's population averaged about 15,000. So, although uniforms were a common sight in our city, and our people usually could tell a brigadier general from a doorman, there was no problem of military personnel superadded to civilian citizens. Fort Bragg was a fairly self-contained community. Fayetteville was a normal small town, a casual shopping center for officers' wives, a place with a couple of movie houses for soldiers on pass.

Then came the build-up for World War II. The 1940 census gave Fayetteville a population of less than 18,000. By 1942 and 1943 Fort Bragg had a fluid population varying from 60,000 to 104,000.

As a civilian town, Fayetteville was simply inundated. Hundreds of house trailers rolled into and around the town. Hundreds of soldiers and their relatives daily haunted the rental and real-estate offices. A new species of prospector, the Army-Navy store proprietor, arrived in scores and opened emporia with flashy fronts selling merchandise more flashy than dependable. Prostitution was practiced behind latticed porches along certain streets and in casual houses deployed all around the compass. And everywhere crowds — and especially crowds in uniform. Jostling, buying, selling, sometimes shooting; worrying, hurrying; all was a vast carnival, and disorder was its main feature.

It is idle now to assess blame. With such a sudden burgeoning of military population to such a disproportionate size relative to the size of the town, the best plans would have been warped and sprung. But it is fair to say, and worthwhile to note, that things were worse because there had been little planning, either civilian or military.

Now we have gone through the World War II experience and the years following, during which Fort Bragg has maintained a military population just about exactly matching Fayetteville's new population—around 35,000. For years now we have been twin communities—one civilian, the other military. More accurately, we have become two communities pretty well mixed in our components and complexion. We believe that we have learned how to live together for the best interests of everybody; we know, at any rate, that we have learned a lot more about it. There is much still to be done; but it is manifest that much has already been done.

Housing—the No. 1 Requirement

I would rate adequate housing as the Number One requirement for stable and satisfactory relations between a civilian-community host and its military guests. If there is not adequate housing, there is—it must be said simply and forcefully — no solution except to get adequate housing. Doubling up, rent hiking, shoddy construction—these fail the needs of our soldier families and kill the spirit and structure of a community. Decent housing, decently

priced, and enough for forseeable needs, must be obtained. Here will come an acid test of joint good-will planning between town and Fort.

Right after the close of World War II, Fayetteville had its conscience shocked one night at a mass meeting called by former Mayor Charles G. Rose, Jr., and addressed by Colonel Richard C. Mallonee, Deputy Post Commander of Fort Bragg, when by pictures and authenticated stories we learned that hundreds of soldier families were still living in our community in conditions of literal filth and degradation, at fantastic rentals. Out of this meeting and other meetings and plans, we have built housing and built a better joint community. Since 1940, private enterprise in Fayetteville has built over 3,100 dwelling units. For example, an entire sub-community, consisting of 118 housing units, has been built by one private enterprise and is rented entirely by Negro families, chiefly military families. Today, this project—Elliott Homes—is one of the best and most attractive Negro housing developments in this country. Under the Wherry Act, Fort Bragg itself has had built—about to completion now—1,000 additional units. We need more, and may need many more.

Civilian and Military Police Team Up

In the old, wide-open, largely unplanned days, disturbance was everywhere and violence was shockingly widespread. A federal act enabled the FBI to move in with local authorities and clean up prostitution and control narcotics and other organized crime. That still left the scores of brawls, the robberies, the all too-frequent felonious assaults, the uncontrolled street masses. Civilian and military police teamed up. Joint offices and joint patrols were established. Prevention of incidents became the keynote.

Today, the civilian police department of Fayetteville is permanently welded to the military police of Fort Bragg. It is not an arrangement constraining the respective organizations; rather it is restraining the incidents that would plague both organizations. We clear information together, have officers together, have some patrols together as well as our separate patrols, and consult all the time; but civilians are warned, arrested, and processed by civilian police; and officers and soldiers, for all petty matters, are warned, apprehended, and processed by military police. We have just recently completed our annual City Police School, and the school was attended by scores of military police personnel who studied alongside our own officers.

I believe observation today will convince anyone that Fayetteville is one of the best behaved garrison cities in the country.

Now take what has been called "morale." To me that means in this context character and happiness of the servicemen. Even if the leaders of the civilian and military community plan adequate housing for the servicemen and adequate policing for prevention of trouble, they have still a great task ahead. This task is to provide constructive recreation and extra-curricular interests for the servicemen. The churches must encourage soldiers to become parishioners, and the soldiers must be made to feel welcome in church activities. Parks and recreation departments must exercise imagination to expand their services and facilities to draw and accommodate as many servicemen as possible. All civilian clubs and activities must sincerely welcome these new guests, and make them part of their planning.

Local USO Clubs Retained Through Citizen Effort

Extraordinary efforts must be made. In World War II we had to have USO or its equivalent. Here in Fayetteville, it has been a necessity ever since World War II. Early last year, the national USO failed, leaving stranded the large white USO Club and the large Negro USO Club here. It was literally true—and so recognized by all of us—that something had to be done to save the operations of these clubs if we were to be spared an enormous soldier-delinquency problem and a completely unhealthy, community stagnation. The result was a one-day drive by the people of Fayetteville which raised $25,000 to finance these clubs for a year. Now the budgets of these clubs have been assumed on a special basis by the Community Chest.

A V Corps military policeman prepares to start a joint patrol with Fayetteville police. Officers combine forces on many assignments, and every prowl car carries both M.P.'s and city police.

The City of Fayetteville used to connote dissatisfaction in the minds of thousands of soldiers. Fort Bragg, during the early crowded years of World War II, was considered necessary but troublesome by many of our civilian residents.

Fort Is Economic Mainstay and Friendliest Neighbor

Now we have all learned better, and we have planned better. The city recognizes the Fort not only as the economic mainstay for the city but as our closest and friendliest neighboring community. We are proud—very proud—of Fort Bragg and its headquarters for the Army's V Corps, the 82nd Airborne Division stationed there, and Pope Air Force base. And the Corps and Division, the Base and the Fort know that the people of Fayetteville are their fellow workers and their friends.

Building this kind of neighborliness is challenging work for city and civic leaders. Moreover—in these days—such work nourishes the grass roots of Freedom and her defenders.

Syracuse Widens a Busy Street

• • • *and breaks a traffic bottleneck*

By NELSON F. PITTS
City Engineer
Syracuse, N. Y.

PROBABLY the most interesting project in the 1950 street-improvement program of the City of Syracuse was the widening, repaving, and resurfacing of Prospect Avenue. Although this street is only five blocks long, it has carried an ever-increasing load, created by three churches and a hospital that are located within this short distance. The hospital is situated at the top of a rather steep grade, nearly at the mid-point of the length of the street.

Prospect Avenue originally was paved 27 feet in width. In 1934, the block in front of the hospital was widened to 36 feet to relieve traffic congestion. However, traffic continued to be a problem, primarily because of church growth and a substantial increase in hospital usage. Finally, the hospital found it necessary to build a large addition, which was completed during 1950. Thus it became evident that this street would have to be widened as much as physical conditions would permit.

This is how a typical section of Prospect Avenue looked before the improvement.

The first step in the project was to excavate for the added width.

Trees Protected

In planning this improvement, it was necessary to save as many trees as possible to retain the residential character of the area. For that reason, some blocks were widened more than others. Two were widened to 48 feet, one to 44 feet, and two to 42 feet. A Marion back hoe excavated the widened section and a Caterpillar grader brought it to true elevation.

The sidewalks on this street were of sufficient elevation to allow placing a new surface over the old pavement. Inasmuch as the depth of the new pavement varied considerably throughout the length of the street, the concrete was purchased on a cubic-yard basis. The concrete was delivered by five Ransome truck mixers, of 5-yard capacity, mounted on Mack trucks. For depths varying between 3 and 7 inches, the excess over that required for 3 inches of sheet-asphalt top was filled with asphalt binder placed by a Barber-Greene spreader in layers not exceeding 2 inches in depth, thoroughly compacted. Where the new pavement-depth exceeded 7 inches, the portion below 3 inches required for top was filled with portland cement concrete. This concrete was held in position, while solidifying, by boards fastened securely in place by iron pins.

Keyways Give Bond

In order to prevent the new surface from sliding along the old pavement on the grades, keyways were placed two to a block except at the top of the grade. These keyways, or trenches, 2-2½ feet wide, were dug through the old pavement. In these trenches were placed bent rods tying the new concrete to the old pavement. Where sheet asphalt was

laid directly over the old surface, a tack coat of asphalt was applied by means of a pressure sprayer at the rate of 1 gallon to 12 square yards of surface.

The widened area was paved with concrete 8 inches deep, mixed about 1:3:6, over which was applied sheet asphalt comprising 1½ inches of binder and 1½ inches of wearing course. Two 10-ton Buffalo-Springfield rollers were used to compact the surface. All concrete laid was reinforced with wire mesh. The main sidewalks were replaced by new walks, and the areas between walks and curbs were either sodded or seeded, the sod being placed on the steeper slopes.

Other Streets Also Given Attention

This improvement, .45 of a mile in length, cost approximately $134,000.

Various other streets also come in for attention. Roughly, half a mile along Milton Avenue, paved with brick since 1914, was improved with a sheet-asphalt surfacing. A short length of Walnut Avenue, troubled with rough surface and unused streetcar rails, was smoothed over with asphalt and the rails covered. A similar length of street at College Place, also rough and laid with car rails, received improvement. A portion of Eastwood Road, formerly surfaced to 30 feet without curbing, was widened to 36 feet and given granite curbs. Richmond Avenue also was widened for a portion of its length. Other smaller projects included resetting curb on the street near our Salt City housing project, resetting curb where new sidewalk had produced a dangerous condition, and building new sidewalks and drives adjacent to our storage garage. All of these, while minor in character, were of great importance to the adjacent property owners.

Resurfacing was begun after the necessary excavation.

Here is the way the street looked when the improvement had been completed.

Pay Increases for Municipal Employees

TWO-THIRDS of 62 cities with a population of less than 100,000 raised the pay of some or all of their employees during 1950, according to a survey made in January by the International City Managers' Association among selected cities in various parts of the country. The Association has collected pay-rate data from these same cities for several years to keep a record of changes in pay rates for 20 municipal jobs. Thirty-six of the 62 cities granted general salary increases, and 18 other cities increased the pay for certain employee groups.

With regard to the 20 municipal jobs, two-thirds of the cities raised both the minimum and maximum pay for laborer, truck driver, policemen, firemen, heavy-equipment operator, and automobile mechanic, while less than half the cities increased the pay for such positions as junior accountant and play leader. Among the cities making service-wide pay increases, about one-half used the flat-amount method and the other half granted a percentage increase.

The beginning and maximum pay rates in 96 cities (including 34 cities with a population of over 100,000) for each of 20 municipal positions as of January 1, 1951, are contained in a report, entitled *Pay Rates for Selected City Jobs in January* 1951, which has been sent to the officials of nearly 700 cities which subscribe to the Association's Management Information Service. The report also shows the length of work week and vacation granted for each position.

Salaries of city managers of 672 cities reporting as of January 1951 were used by the ICMA in preparing the following tabulation which shows that the over-all increase in salaries of city managers since 1942 is 56%.

Population Group	*Number of Cities Reporting*	*Average Salary Jan. 1951*	*Per Cent Increase Over 1942*
Cities over 250,000	8	$17,837	33
100,000 to 250,000	20	15,869	80
50,000 to 100,000	42	11,573	52
25,000 to 50,000	64	9,302	59
10,000 to 25,000	202	7,283	66
5,000 to 10,000	167	5,812	54
Under 5,000	169	4,452	49

No comparison is made with recent years because the 1950 census shifted a large number of cities into and out of the different population groups.

HYDRANTS
Their Problems And How to Solve Them

Practices at Richmond, Va., Rockford, Ill., and St. Paul, Minn., show how to keep hydrants in good operating condition

For guidance in this discussion of an important part of every water-distribution system, this article draws on the long experience of:

MARSDEN C. SMITH
Chief Engineer
Department of Public Utilities
Richmond Virginia

HJALMER STALIN
Assistant Superintendent
Department of Water
Rockford, Ill.

R. E. WATTERS
Distribution Engineer
Water Department
St. Paul, Minn.

Where is the best place to locate a fire hydrant?

Marsden C. Smith: Our standard location is 24 inches in back of the face of the curb and 15 feet away from the nearest intersecting property line. This is to avoid interference with driveways and bus stops as much as possible.

Hjalmer Stalin: For a general policy, we try to place the hydrants so that the firemen have no more than one block to the nearest hydrant in case of fire. We make a wider spacing in the residential areas that are not so well built up. Hydrants placed where they are seldom used only incur extra maintenance expense. Often when someone builds on the vacant property, the hydrant has to be moved anyway. We set the hydrants about 8 feet from the property line, far enough back from the street curb to be away from possible car damage.

R. E. Watters: Hydrants in residential and low-value districts are placed at each street intersection. Hydrants in high-value, factory, and industrial districts are placed two at each intersection, diagonal from each other, and in most cases one is set in the middle of each block.

Do you place a valve on every hydrant?

Mr. Smith: Yes.

Mr. Stalin: Yes. This is a policy that we established the hard way. We used to install hydrants without valves. And whenever we had to repair a hydrant, we had to turn off the mains and leave the householders without water. Domestic users did not complain too much, but industries did.

Mr. Watters: In residential and low-value districts on 6-inch and 8-inch mains, with a few exceptions, hydrants are not gated. In high-value, factory, and industrial districts all hydrants are gated. On all mains of 12 inches and over, all hydrants are gated in all parts of the city.

Do you house the valve and hydrant in a manhole?

Mr. Smith: No—the valve is placed at the main and is accessible by a standard valve box which rests on a brick enclosure. If a hydrant valve is leaking, it is desirable for water to appear at ground surface for early detection and repair.

Mr. Stalin: Yes, we do, and we believe it is an economy. Formerly, we used stone and straw drip-beds. These generally required about a cubic yard of stone, depending on the soil where the hydrant was installed. When the hydrants were used too often, the moistened soil attracted the roots of trees and soon filled the drainage space. In some places we have had to dig up hydrants in three years. Our manholes, being dry, do not attract roots. We build the manholes out of brick, using a dry-wall construction, eliminating cement mortar, and leaving a little space between each brick. The manhole is built so that when it is drawn up to form the neck, the opening is in front of the hydrant. The manhole is built with enough space between the hydrant and the wall to take the hydrant apart easily if it has been broken by a car.

Mr. Watters: All valves 20 inches and over are housed in manholes; the balance have Morgan-type valve boxes placed over them. No hydrants are housed in manholes. All are set in earth and provided with a 6-cubic-foot drip box.

What are the most common problems with worn hydrants?

Mr. Smith: This depends upon the

"I don't care if he does play the violin—tell him to get a haircut!"

manufacture of the hydrant. With most hydrants, the most frequent repair required is to the main valve, with loose nozzles second in frequency.

Mr. Stalin: Some worn hydrants will cause water hammer when used. We have even had examples of the water hammer being great enough to break a main. We find that the operating nut and threads of the rods on the hydrant valves had become worn enough to allow a little play in the threads. This would let the valve give a little, so when it was almost closed it would begin to vibrate against the seat of the hydrant, causing water hammer. We made new operating nuts and pieces with new threads and welded them on the rods. This made a tight fit in the threads and the hydrants then operated as good as new.

Mr. Watters: Worn operating or revolving nuts which we replace with new ones. Worn rod threads which we replace by having new threads cut on new steel stubs which we weld on to old rods. Worn leather valves which we replace with new valves made in our own shop.

How often do you test hydrants?

Mr. Smith: The Fire Department makes monthly inspections and reports any defects found to the Water Department which are corrected by the latter. Flow tests are permitted at limited times and are generally made by insurance inspectors with a copy of their report to the Water Department office.

Mr. Stalin: We test them every fall and record each test. We notify the Fire, Street, and Sewer Departments before every test. They, in turn, call us whenever they use a hydrant. When testing hydrant, they are repacked. Each hydrant is opened to make sure that it works properly, and each cap and nozzle thread is greased.

Mr. Watters: All hydrants are inspected twice a year, in spring and fall.

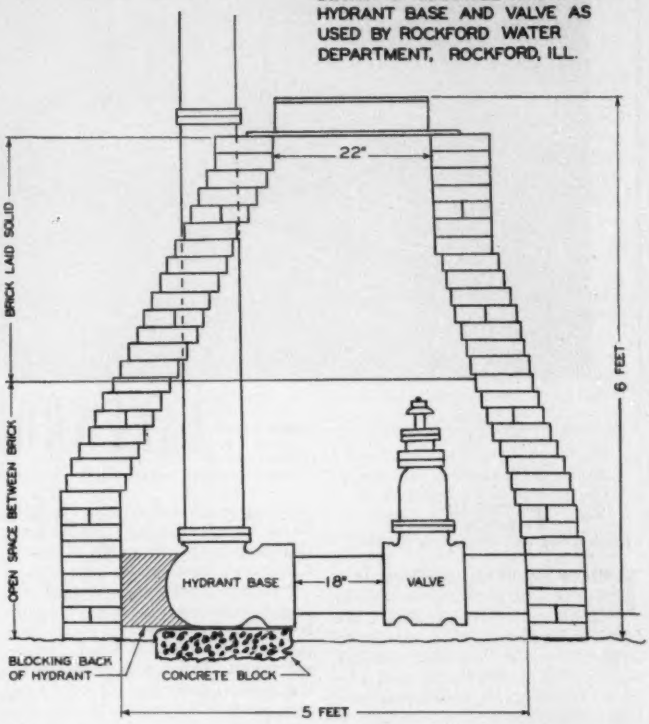
Whom do you allow to use the hydrants?

Mr. Smith: The Street Department is allowed to use only certain hydrant for flushers, and other equipment. A licensed contractor may use a hydrant with a portable water meter upon the payment of $10 monthly for any damage done to the meter or hydrant by him and also for the water used at standard rates.

H. Stalin: We allow only certain authorized men in the Municipal Department. With too promiscuous use of the hydrants, threads can become damaged and safety pins become sheared off.

Mr. Watters: Almost anyone in all city departments uses the hydrants at some time in the year, also contractors, by permit, for various types of construction work.

DESIGN OF MANHOLE HOUSING HYDRANT BASE AND VALVE AS USED BY ROCKFORD WATER DEPARTMENT, ROCKFORD, ILL.



If your inspection discloses a broken hydrant, who pays for the repairs?

Mr. Smith: The Water Department, except when the person responsible for the damage is known.

Mr. Stalin: If the evidence is fairly clear as to who broke the hydrant, we bill the individual or company. Often this is the case around a factory district, where heavy trucks operate. If we are not sure who is guilty the Departments pays the expense.

Mr. Watters: We try to bill the party responsible for the break.

Two Cities Take Action To Encourage Use of Grinders

GRINDERS will become preferred method of food-waste disposal in South Euclid, Ohio, and Herrin, Ill., as the result of action by both city councils.

The action by South Euclid was in the form of a city ordinance requiring the grinders in all new residences. As a result, dealers for Hotpoint, Inc., have reserved 500 of the grinders for use in this city, and have embarked on a concentrated drive to encourage their adoption in all residences.

In Herrin, Ill., the city is not requiring them by ordinance, but has, in effect, become the local distributor for the General Electric Disposall. The company sells the grinders directly to the city for $60, and local plumbers and electricians have arranged for a flat installation charge of $39.50. Local banks also have made a time-payment plan that will be operated through the city Water Department. The arrangement requires a down payment of $9.95 and a monthly payment of $4.18.

The plan in use in Herrin was developed by Mayor Fred E. Schoonover. One helpful factor is that Herrin recently completed a sewage-treatment plant adequate to handle any added load that the grinders might impose.

An aerial photograph of the Lakewood Park area, with model of the shopping center superimposed. Construction on shopping center, which will accommodate 10,000 cars at one time, is well under way.

the city they built in **6** *months*

LAKEWOOD PARK

By RAY DAY
Western Editor
Contractors and Engineers Monthly

FROM a field of sugar beets to a city in sixth months is the remarkable story of Lakewood Park, Calif. Starting from scratch in a 3,500-acre farming tract in an unincorporated country area on the southeastern outskirts of Los Angeles, 7,000 homes were built and finished in six months, including all grading, construction, changeover of the water system, and installation of utilities. This season, if federal building controls permit, the developers expect to finish the 17,150-house job, which will accommodate almost 70,000 persons — making most other "large-scale" housing projects seem pygmies by comparison.

Lakewood Park has a number of other unusual features. The whole project will be garbage-free, as every house has been equipped with a garbage grinder. Larger than normal sewer lines were constructed in order to carry this increased load, emptying into county sewage-treatment plants. Land has been set aside for parks, playgrounds, schools, churches, and a major shopping center. The builders are providing the development with 133 miles of paved, curb-lined streets, 108 acres of sidewalk, and 5,000 modern concrete electrolier street lights.

Growth of Area

Whether Lakewood Park will incorporate as a separate municipality, or whether annexation to the City of Long Beach will be sought, still has not been determined. A large strip-like park owned by Long Beach runs almost the length of the project, and the Long Beach Stadium and site for the Long Beach City College both extend from this park, near Lakewood's center, in a previously built-up area.

Near the southeast corner of the project is the huge plant of the Douglas and North American Aviation Corporation, and the Long Beach Municipal airport. This section also includes the 164-acre Lakewood Country Club area, which will remain intact and perhaps be further expanded.

Industrial development in the general area adjacent to the project has been rapid, and is being spurred by the present mobilization boom. The project's sponsors make much of the fact that it is located near the Santa Ana Freeway and the Harbor Parkway, both under construction. The project itself is somewhat more than 12 miles from the Los Angeles city center.

Responsible also for the project's success is the fact that homes have been sold with no down-payments required for veterans; 99% of them are now veteran-occupied. Houses range in cost from $7,825 to $10,250; and monthly payments—including all taxes, insurance, and other charges—run from $43 to $64. More than 85% of the buildings constructed thus far have 2-car garages; 90% of the project is composed of three-bedroom homes.

The huge 153-acre shopping center is also a major feature. It will contain three large department stores, and a mall a quarter mile long uninterrupted by streets and vehicular traffic. The stores will be serviced with a tunnel delivery system, so that all unloading will be at the basement level. For every square foot of selling space there will be 2½ square feet of off-street free parking space, accommodating 10,000 cars at one time. Space is reserved in the shopping-center area for future civic buildings.

Butler Brothers department store will be at the northwest end of the shopping mall, and a large May Company department store, now nearing completion, is in the middle. In addition to the primary shopping area, there will be secondary areas, with supermarkets, office buildings, automobile service and salesrooms, a drive-in restaurant, service stations, banks and a post office, a hospital and medical center, and a recreation and amusement center with two theaters, bowling alleys, a swimming pool, and tennis courts.

Historic Tract

The property being used for Lakewood Park covers about 10 square miles of one of the last ranch holdings of the Montana Land Company. Around the turn of the century the area was a vast expanse of willow trees in the Los Angeles River delta. The land company cleared the trees, developed the property, and leased much of the land for the production of sugar beets.

During the course of land development for farming, a water-supply system was developed from underground wells, and power was brought in. Today, many of the men from the old Montana Land Company work together under the name of Lakewood Water and Power Company, a private utility.

Early in 1950, the 10-square-mile tract changed hands in a gigantic $8,800,000 transaction between the Montana Land Company and the Corporation of Lakewood Park. The buying firm is a joint-venture company com-

posed of two long-established building contractors, Aetna Construction, Inc. (Louis H. Boyer, president), and Biltmore Homes, Inc. (S. M. Taper, president). It was one of the biggest single real-estate deals ever recorded west of the Rockies. Ben Weingart has been the project's prime promoter and developer.

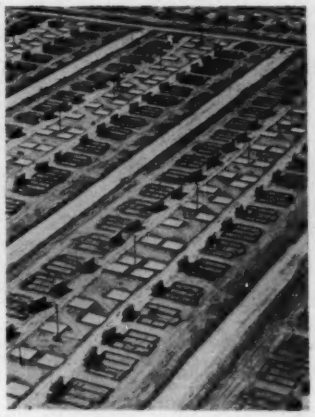
A large investment syndicate put up $30,000,000 for mortgage purposes, including the original land purchase. The Prudential Insurance Company is handling the financing on the remainder of the project, including the shopping center. The home mortgages are, of course, government-guaranteed.

To speed development and make it orderly, the land was divided into 40 building tracts. Usual size of a tract was 157 acres, but small tracts near the Lakewood Golf Course, owned by the builders and partially enclosed by the sprawling boundaries of Lakewood Park, have as few as 20 acres. Each tract has between 230 and 640 homes. The variation is due to the fact that certain areas of some tracts will be devoted to churches, playgrounds, etc. With the exception of a few large corner lots, all lots are the same size, 50 by 100 feet.

Water Supply: Mammoth Job

As each building tract came up for construction, one of the first requirements was water. It was necessary for the Lakewood Water and Power Company to redesign its entire water-supply system and make the changeover from a low-pressure agricultural supply to the high-pressure, constant supply, characteristic of a modern city's needs.

The job was big, measured by any standard. Mistakes simply couldn't be tolerated. Over 97,000 linear feet of cast-iron mains of 4-, 6-, 8-, 10-, and 12-inch diameter had to be laid to replace the old low-pressure concrete lines. The wells had to be rejuvenated in a few cases, and a few new wells had to be drilled. Before this job was done, the men were to install 1,400 meters a month. They figured per capita water



Seen here are rows of foundations, set with initial plumbing installed. There is no stock-piling at Lakewood Park, and lumber is stacked in exact quantity at each house, with all materials delivered direct from subcontractor.

use on the basis of a gallon a minute per connection, and maintained pressure of 75 pounds in spite of 20 water tankers in the construction area which were hauling from their hydrants.

And, in addition, a complete pump changeover had to be made from old-model, deep-well turbines to ultra-modern Byron Jackson submersibles—pumps so far ahead of the old ones that some were installed under paved streets, thus saving three valuable wells which fell under paved areas.

When Lakewood Water and Power Company builds its new booster station, it will install submersibles instead of conventional centrifugal pumps, in order to save an operator expense and increase dependability. The initial order, for 22 of the submersibles, was scheduled for Lakewood Park's water supply and line pressure. In addition to pump pressure on the lines, about 3,500,000 gallons of surge storage is available in steel reservoirs—enough to take care of city needs for about two days.

Existing wells were from 350 to 1,100 feet deep, and mostly of 14-inch inside diameter. A feature of the wells that paid good dividends was the fact that every casing joint had been welded at the time of installation. This excludes all water except what enters through perforations far down in approved water-bearing strata. The company standardized all major items: Byron Jackson pumps, Pacific States cast-iron pipe and valves, and Hershey meters.

Strike Threat

When a railroad strike threatened the pipe supply, the Pacific States firm at Provo, Utah, put 28 big truck-trailers on the road—enough to keep three Buckeye trenching machines busy at Lakewood. Installations Superintendent Perry Lucas set the pipe up without jute in the joints—something he claims is useless. He butted the pipe ends together tightly, and then packed dry cement in the bell, using special care.

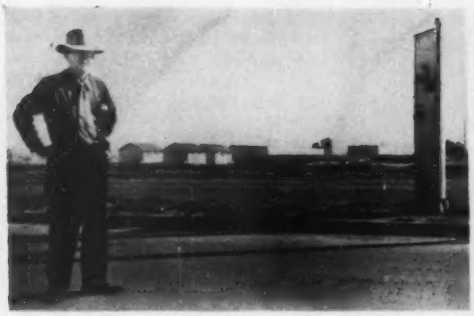
Along with water-supply development in the area under construction, there was always plenty of other activity. Grading was usually a simultaneous operation; so was foundation work and the earlier stages of forming. For grading, the subcontractor, J. A. Thompson & Son, used three DW 10 Caterpillar tractors, two Caterpillar motor patrols, one Allis-Chalmers HD 19 pushcart, two D 8 Caterpillar pushcarts, two 60-inch sheep's-foot rollers with D 8 Caterpillar power, one HD 5 pneumatic-tired tamper, two 2,500-gallon water tanks, and 10 Wooldridge Terracobras. A Northwest dragline was used to dig the two major drainage channels, gunite-lined, to dispose of storm water.

Two complete batching plants, each capable of producing 1,000 cubic yards of concrete mix per day, were set up at central points and a fleet of 30 transit mix trucks delivered concrete into 125 complete sets of preconstructed foundation forms, each delivered to the building site by forked truck. Often 50 foundations were poured daily.

Streets in the project are paved with 1½-inch No. 2 macadam on an aggre-

Special shop-built lift deposits shingles on each roof.

Skilled crews of workmen specialize in laying sidewalks.



Above: Superintendent Perry Lucas standing over a Byron Jackson submersible pump, which is below the street surface. Controls for pump are at right. Below: Concrete is poured directly from truck mixers to foundation forms.

Above: One of the 10 Terracobras used in grading operations. Below: A Marbelite concrete street electrolier, one of 5,000 manufactured by the Pacific Union Metal Company, of Los Angeles, installed on a Lakewood street.

gate base 4 to 9 inches thick. All major boulevards through the area are widened to either 80 or 100 feet. Curbs are laid by a traveling concrete mixer machine which squirts liquid concrete into a curb frame. Two major outfall lines, each about a mile long, were constructed to deliver the sewage to District No. 3 of the Los Angeles County Sanitation Districts. The first was built of 30-inch reinforced concrete pipe, the second of 27-inch vitrified-clay pipe. One trunk main, in Spring and Palos Verdes Streets, consists of 5½ miles of 21-, 24-, and 27-inch vitrified-clay pipe; the other, in Del Amo Street, is 2½ miles of 21-inch vitrified-clay pipe.

Reams of copy have been written in the past about "assembly-line methods" of house construction, and at Lakewood Park it was a fact. Assembly lines were formed so efficiently that carpenter crews finished one side of a street before they crossed and returned up the opposite side, just to save a few steps.

The assembly line was first conceived from a management standpoint. Carpentry, common labor, clerks, and the administrative staff were furnished by the builders. All other specialty operations were let out to private subcontractors, carefully selected on the basis of their ability to do good work at sustained high speed. Schedules were extremely tough, but they were the secret behind the speed of building.

Material supplies and the subcontracted operations had to be synchronized almost to the minute. Most of the supplies were delivered to the individual house lot in correct amounts. As a construction crew moved up a street, supply trucks dumped the required amount of lumber, doors, or plumbing fixtures on the lots ahead. No time was wasted in unnecessary handling. Lumber was delivered directly to the lot by Hammond Lumber Company trucks, and dropped without secondary storage and rehandling. Even shingles for roofs were hoisted by special lifts with electrically powered continuous belts.

Trenches for the foundations were dug with flail diggers which took only 15 minutes to dig out for a dwelling unit. Materials were standardized both in dimensions and amount. A prefabrication yard assembled all pipe units for installation in finished foundations. Division of building labor was extended much further than usual. The work of any crew was so limited that it became instinctive and super-accurate. Roof plumbing was divided into four separate operations, for example, with a gang for each operation. Floor joists were built together by two-man teams, which moved on to more floor joists instead of staying behind to help with the framing. General carpentry was parceled out to many teams. Roofs went up like magic because only professional shinglers work on that operation. And so on throughout.

Much of the work was mechanized. Aside from such aids as ordinary power saws, there are radiarm power saws, automatic nailing machines which halve the time of nailing sub-floors, and powered door-hanging machines.

Synchronization of supplies and construction was the responsibility of a field superintendent. He used several assistants, many materials expediters, and 12 mobile radio units to communicate throughout the extensive area.

The whole job profited by its bigness. Its very size stimulated its organizers to think and plan in big terms.

The builders were able to offer 13 choices of basic floor plans to the buyers. Each plan was varied by using one of four different elevations, all with the same amount of material. Garages for one or two cars were provided, either attached or detached.

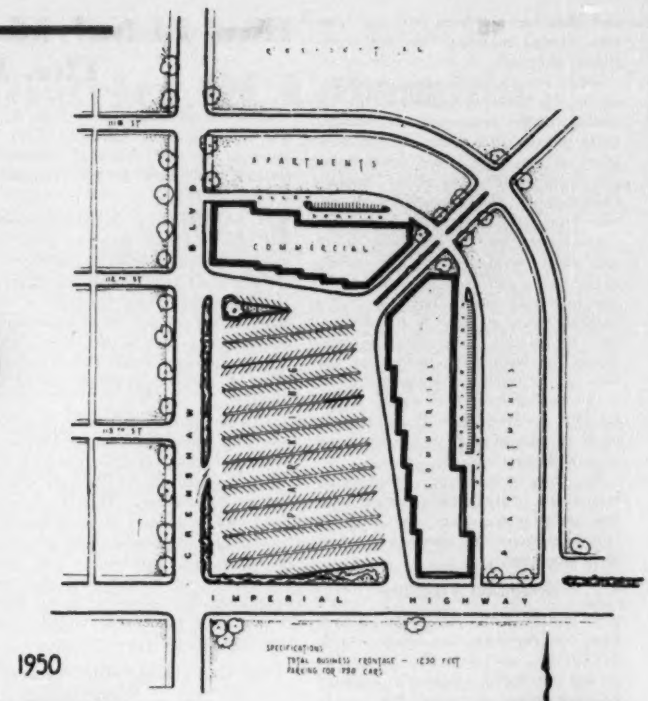
The basic "sales package" includes the house and lot, a Waste King electric garbage-grinder unit made by the Given Manufacturing Company of Los Angeles, double sink, stainless-steel drainboard, painted walls, shades, and screens. Kitchens have inlaid linoleum, and bathrooms are equipped with rubber tile. Gardens are dug over, and a tree is planted in front of every home. Future plans for Lakewood Park may include some garden-apartment type developments.

Editor's Note: See also editorial on page 7 of this issue.

Some prerequisites of design for

The Modern Urban Commercial Center

By THEODORE G. ROBINSON *
Gordon Whitnall and Associates
Los Angeles, Calif.



THE automobile has given the individual a degree of independence never before experienced. In the days prior to the modern automobile, a person was usually compelled to trade at stores in his immediate vicinity, or to use common carrier transportation to reach more distant facilities. This is no longer true. One can now select business centers which give the best service, even though located at a greater distance, and the shopping centers which can give those conveniences are those which the potential patron will choose.

There are several ways in which a shopping center can be designed to incorporate all needed requirements of accessibility, safety, and attractiveness. Naturally, much would depend upon the size and shape of the development. The larger the centers, the more complex the problem becomes. The major problems develop in shopping centers where store frontages have a combined length of 400 feet or more.

A solution to this problem can be obtained by placing the building sites in a staggered position, in the form of a semi-circle between two intersecting thoroughfares, and then placing the parking areas in the quadrant formed by the two streets and the store frontages. Such a plan is very elastic. It can be adapted to any parcel of land, provided it is of sufficient depth and area. Any combination of sites can be incorporated into such a plan, and still meet all of the desired requirements.

The greatest innovation in such a design is locating the parking areas in front of the store buildings. There are several reasons which justify this practice, the major one being the separation of parking and service areas. Some might argue that by so doing, valuable frontage along a major thoroughfare would be wasted on parking. Up to the present time, the consensus among businessmen has been that it is necessary to place the store buildings in locations accessible to the potential patron. The generally accepted concept of accessibility has been that of locations adjacent to heavily traveled arteries. One

An Example

The illustration shows an actual project in the Los Angeles area which was designed using the results of our study as a basis. The site is now located in county territory, but it is in the process of being annexed to the City of Los Angeles. The county has recently zoned the area in conformance to this plan. The building sites indicated as "commercial" have been zoned "C-2," which is general business, and the parking area zoned for "P-1," which is the county's off-street parking zone. Crenshaw Boulevard and Imperial Highway, which border the project, are heavily traveled thoroughfares. The entrances to the parking area, therefore, were located several hundred feet away from the intersection, thus eliminating much of the traffic congestion.

* This article consists of excerpts from a larger paper, which can be obtained in full by writing to the author at 4313 Leimert Boulevard, Los Angeles 8, Calif.

fact that has not been realized, however, is that in doing this, the accessibility originally desired is eliminated.

When store buildings are constructed on heavily traveled highways, the resulting traffic congestion discourages many persons from using the facilities. Much of the traffic is not destined for the shopping area, but rather, destinations beyond. As a result, there are two types of automobile flow: one, characterized by the impatient driver who wishes to pass through as rapidly as possible; and the other, the driver who is moving slowly, trying to find a parking space as close to his destination as possible. The effect of combining the fast-moving traffic with the slow is the same as throwing logs in a fast-moving stream of water. Either the logs are swept rapidly downstream or, if one should catch on the bank and stop, a log-jam results.

But when an automobile tie-up occurs in a stream of traffic the resulting noise and confusion are worse. This certainly is not conducive to leisurely and convenient shopping.

Increased Visibility

By locating stores and shops set back from the highway, this congestion is diminished, and over-all visibility is greatly increased. Valuable highway frontage is not destroyed, but merely spread over a greater depth.

To avoid congestion, entrances to the parking area should be located several hundred feet from major intersections. Visibility would be greatly increased, for it would be possible for a motorist to get a perspective of the entire project. The same principle would apply to this as to a passenger on a fast-moving train who attempts to count passing fence posts. When the posts are close to the moving train, it is almost impossible to view each one independently. This is not true, however, if the posts were located several hundred feet away from the train.

The foregoing innovation in design is cited merely to show how the problem has been solved in one instance. Conditions are generally so varied for each individual project that it is impossible to set up a standardized type of design. The answer lies in setting up certain requirements and specifications and then molding the design to accomplish that which is desired. Many of our older concepts of design must be discarded and a new approach to the problems established. The great competition between commercial areas which are vying for the individual consumer necessitates the ultimate in functional design. Those areas which do provide greatest convenience to the patron will survive; those that don't, will not.

How El Salvador Met The Billboard Menace

(For the following story from Central America, THE AMERICAN CITY *is indebted to the National Roadside Council, 119 East 19th Street, New York 3, N. Y.)*

EL SALVADOR is the fortunate possessor of many beautiful flowering trees and shrubs native to the country.

Since early 1939, Sydney M. Stadler, an Englishman long resident in the country, has pointed out to government officials from time to time how attractive the highways would look if avenues of these trees and shrubs could be planted.

This finally resulted in Mr. Stadler's receiving a message from the President of the Republic, asking him to form the council to take care of this work and to become its president. This Mr. Stadler proceeded to do, and gathered together a committee of prominent Salvadoreans to study the possibilities. To provide funds an annual flag day was organized. This produced about $800, to which the government added a further $800 annually.

City Gives Land for Nursery

Further aid came in the gift from the City of San Salvador of a piece of land for a nursery. This nursery produced yearly some 50,000 trees and about 20,000 shrubs and bougainvilleas. Most of the energy was directed to planting that portion of the Pan American Highway running through El Salvador and to planting also a piece of abandoned land on the lip of the crater of the San Salvador Volcano. This is one of the beauty spots of El Salvador and is now a delightful pine spinney. In addition, trees and shrubs were handed out every year to all comers, rich and poor, and today, most of the beautiful gardens to be seen around the capital are due to the work of the committee. The most popular shrubs have been the hibiscus and the creeper bougainvillea.

The greatest triumph accomplished by the committee was to persuade the President of the Republic to sponsor through the National Assembly a decree which prohibited, after one month's grace, all billboards and similar outdoor advertising within 500 meters (1,640 feet) of any highway. Advertising along the highways had become a terrible disfigurement to the landscape and countryside. Even trees had not been respected, and the walls of cottages were covered with display signs. Before the month's grace was up thousands of unsightly boards had disappeared.

The El Salvador law does not apply within city limits. As a result, some billboards are found at the entrances of the cities, placed there by big business. But there are no billboard companies in El Salvador. The statute has put an end to outdoor advertising as a separate business.

About a year ago Mr. Stadler resigned, and his "Comite de Ornato de Carreteras, Balnearios, Paseos y Jardines Publicos, San Salvador," became inactive. When this fact became known, the boards and signs began to creep back. In December 1950, Mr. Stadler had 3,000 copies of the law printed at his own expense, 2,000 of which were handed to the Secretary of the Tourist Association, who mailed them to the governors of the provinces and to some 250 mayors. Mr. Stadler also wrote to the President of the Republic, who immediately instructed the Minister of Defense (Police and Traffic), the Minister of the Interior, and the Minister of Highways and Public Works to have the offending boards removed. Under the El Salvador law, billboards may be removed without compensation.

This little story points a moral:—the influence which a single individual can wield who wages a persistent fight for the amenity of his community, provided he appeals to the effective sources of local political power.

247 New City Manager Appointments in 1950

THE International City Managers' Association reports that there were 247 city managers appointed in 1950; 129 (52%) came either from other manager positions, were assistants to managers, or were public-administration students serving as interns in manager cities. In contrast with this 52%, the average for the 10-year period from 1940-49 was 34%, and for the year previous to this decade, 1939, it was 23%. The sources of the remaining appointments in 1950 were: promotions from other public administrative positions, such as engineers, finance officers, city clerks, etc., 21%; non-governmental positions, 17%, and background unknown, 10%.

Of interest, too, is the pronounced trend toward appointing out-of-town men. In 1939, only about one out of every three appointments (38%) came from outside the city, while in 1950 three out of every four managers (76%) were appointed from outside the city. In recent years almost invariably the first manager appointed in any city has been an out-of-town appointment. As of March 15, a grand total of 1,014 places were operating under the council-manager plan. The population of these places, according to the new census, totals more than 23,000,000 people.

Purchasing
For the District Of Columbia

By ROLAND M. BRENNAN
Purchasing and Contracting Officer
Washington, D. C.

Roland M. Brennan

THE DISTRICT OF COLUMBIA Purchasing Department functions not only for municipal purchasing, but also as a county and sometimes a state procurement office. It does all the buying for about 70 District agencies and is also responsible for procurement for the public schools. There is no parallel for this unique responsibility in any city of comparable size, as far as we know.

The most difficult aspects of purchasing administration today are caused by the rapidly changing material and price controls and uncertainties as to wages. Purchasing agents cannot do a good job unless they keep informed constantly of government controls, labor relations in industry, and the effect of both on markets, prices, and values. Business newspapers and magazines, trade publications, government releases on controls, purchasing association bulletins, and price and commodity indices are indispensible tools of purchasing under present economic conditions.

If a purchasing agent can keep abreast of the factors which influence the decisions he must make, he will prove an invaluable partner of management in procurement planning and timing, budget preparation and use of substitutes and new products, when necessary.

We have been able to keep all essential public services functioning, but only with greater effort and time-consuming delays. Our limited use of priority rating DO-97, pursuant to Regulation No. 4 of the National Production Authority, does not yet prove that deliveries of essential materials will be expedited. While this regulation (which authorizes business and government agencies at all levels to apply this priority rating on all purchase orders for maintenance, repair, and operation supplies [MRO], and for minor capital additions) should be helpful to purchasing agents in obtaining greater competition on bids and in securing earlier deliveries, reports that many suppliers are already swamped with DO-97's do not offer much encouragement in realizing such objectives. While the regulation limits expenditures for MRO to a base period of 1950, the NPA has not yet officially recognized that the 1951 dollar will not buy as much as the 1950 dollar. And we should not lose sight of the fact that the purchasing power of the dollar is the lowest in history. In arriving at the District's 1951 quota for MRO, this fact has been taken into consideration. The District has requested an increase of 20% over the Bureau of Labor Statistics' all-commodity index, excepting farm products and food, as of January 1, 1950, for its MRO quota for the next year.

Items Difficult to Obtain

The District has had difficulty in obtaining such items as copper tubing, steel pipe, steel sheets of heavy gauge, and other critical materials. For example, 6- and 8-inch steel pipe could not be obtained on competitive bids, as no one responded. We negotiated with an eastern steel mill for the pipe, obtained a price for 90-day delivery by the mill to several of the mill's local distributors, and gave the purchase order to one of the distributors. This approach proved effective. On another occasion, no bids were received for a quantity of 8- and 10-gauge steel sheets required for the repair of garbage-truck bodies in our shops. By changing our specifications to provide for a larger quantity of any gauge from 8 to 12 and for all sheets to be of commercial grade and size instead of special dimensions, we obtained the material from a steel mill.

The District has hesitated, up to this time, to adopt an "umbrella" clause requiring the bidder to certify in his bid that the prices quoted do not exceed the maximum prices established by the Economic Stabilization Agency. It is a matter of common knowledge that the stop-gap price freeze of January 25 is thawing out in favor of dollar-and-cent limitations on the manufactured materials at all trade levels.

Purchasing agents, generally, are in a good position to help control inflated prices by refusing to pay them when out of line with values. Look what happened to the tin market recently when the Federal Government stopped buying tin for the stockpile. Tin dropped from $1.83 to $1.34 per pound in a week.

Amendment No. 6 of the General Ceiling Price Regulation, dated March 16, 1951, authorizes sales for future delivery and provides for a price which may be no higher than (a) the ceiling price in effect at the time of the delivery, or (b) the lower of a fixed price, or the maximum price in effect at the time of delivery, whichever is lower. This gives official sanction to escalator clauses in purchase contracts. When we are convinced that the best interests of the District would be served by considering an escalated bid and all bids are so conditioned, we try to limit percentage-wise the amount of the possible increase in price at time of delivery or use a provable index such as *Iron Age* or *Steel*. In any event, the contractor is held strictly to his delivery time, and should any increase in price occur after the contract delivery time has expired, the contractor is held to the contract price.

The Director of the Office of Civilian Requirements of the NPA is reported to have said that the civilian economy will not suffer materially unless there is a major war, and that, so far, there has been no serious shortage of civilian items. How that forecast will affect the city buyer of police scout cars, fire apparatus, water and sewer pipe, traffic-signal lights and controllers, parking meters, telephone wire, radio equipment, hospital equipment, construction equipment, etc., remains to be seen. Special priority assistance is available through the medium of Order No. 127 of the Department of Commerce for the procurement of those items outside of the scope of NPA Regulation No. 4, until the Controlled Materials Plan gets under way on July 1. What will happen then is anyone's guess. But as of April 9, 1951, there appears to be some doubt about the scope of the proposed Controlled Materials Plan and how effective it will be as a procurement aid for civilian requirements.

Giving Away America!

By SANDERS A. KAHN
Assistant Professor of Real Estate
University of Florida

ARE YOU an industrialist? Do you employ 150 skilled workers? If your answer is "yes," you win the jackpot.

This type of quiz is sometimes sponsored by local chambers of commerce, boards of trade, development commissions, etc.

Many of these groups are now feverishly engaged in finding businesses to which they will give free land, free buildings, free police and fire protection, free streets, free rubbish removal, and countless other concessions.

What is the reason for this Santa Clausitis? It may be answered that a new industry will pay employees salaries which in turn will be spent in the retail stores and for the payment of rent; and that very often the employees will buy their own houses, which will add stability and permanence to the community.

This is fine. Cities will grow when they have qualities to make them suitable for industry. A good seaport can draw industry to Norfolk. Coal mines will attract industry to Pittsburgh or Birmingham. Skilled labor will aid New England communities to retain machine shops and instrument and watch plants. Weather will play an important part in certain manufacturing processes. A railroad, a good truck highway, or a canal will aid in a city's development.

Such factors and others are legitimate attractions to industry. The efficient head of a business will consider these as essential features when seeking a new plant site.

But let us see what is happening.

The "Free Deal"

A community not having the proper conditions will agree that it would be nice to have more industry. Having failed to attract factories in any other way, the civic leaders will agree to "manufacture" some reason for industry to "move in." *If the industrialist says that we do not have proper raw materials close enough, why, we'll make up for that deficiency. We'll give him free land and not ask him to pay taxes for 20 years.*

That works for a while, but soon a rival community agrees to give him free rent. Then another community shouts, "We'll build a plant to suit your needs and make you a present of it. Come to our town. We're friendly to business." Friendly isn't the word for it.

The writer can visualize the town's not only doing these things—but finally paying for the manufacturer's insurance on the building—and, in time, supplying a night watchman, to keep down the cost of insurance premiums.

Surely, most officials of the chambers of commerce have expressed themselves as being opposed to socialism. It is the writer's opinion, however, that some of them have been actively sponsoring socialism. It should be obvious that when the city or state subsidizes industry to this extent, government becomes a senior partner in business. Relatively, there is one short step and the community is in business for itself.

National Report

The Chamber of Commerce of the United States frowns on the practice of giving America away. In an organization report the suggestion was made that: "It may not be too much to suggest that, when chambers of commerce in increasing numbers come to realize their responsibilities in locating new industries, not only to the communities but to the country as a whole, they will discard bonuses from their competitive armory."

How prevalent is the "Free Deal"? The National Chamber published the results of a survey of local chamber of commercial activities. One portion of the report covered "Inducements to New Industries."

Of 740 chambers surveyed, 163, or 22%, admitted that they gave industries "special inducements." Very likely, other chambers did not wish to divulge this information; thus it is quite likely that the figure should be much higher.

It is interesting to note that the practice of giving things away is most prevalent among small communities, which usually can least afford the expense.

The most common inducements reported were free land, tax exemption, and free rent. Of course, these bonuses do not stop with grants to new industries. If you agree to give tax exemption to a new factory, existing industries in the community may ask for similar treatment. If the community does nothing to soothe them, they think of moving out of town. Then another city treats them as a new industry and offers them inducements to move.

Other Problems

This practice has other serious implications. Business will tend to become unbusinesslike. Since some community that is not a suitable industrial location will artificially equalize its position by giving industry an inducement, there may be less need of choice by the businessman. However, somebody must pay for using more expensive means of production. The consumer may have to pay higher prices or taxes or the worker may have to take lower wages. It may also cause the failure of the business itself.

Another problem sometimes confronts the community. Realizing that at the expiration of a bonus-agreement period the industry may move on to greener pastures, some communities have used bonus agreements with no termination date. They place themselves in a dangerous position. Conditions may change and still the community must continue the bonus.

A Thirsty University

The City of Gainesville is now faced with that problem. About 50 years ago its citizens bid to have the University of Florida locate there. Besides other inducements, Gainesville offered free water. The University accepted the offer. Its growth has been astonishing and its thirst for water has multiplied many-fold.

The city must now increase its water supply to meet the University's growing needs. It apparently lacks the taxing

capacity to pay for a new water plant and now asks the University to pay for water. Even if the University wished to allow the city to renege on its agreement, it is not able to do so. It is a state institution and has not the power to cancel the city's obligation. The problem must be met and solved by the city.

Preparing the Community

If bonuses are debarred, what can a community do toward increasing its growth? There is no mystery involved in the procedure. Basically, what it involves is to discover the potentialities of the community and then seek the industries that can best use these potentialities and resources. In other words, just like any business, the community must find out what services it has to offer and then find a market for them.

In a competitive system, companies must also be certain that they have the most economical location for their business. The choice of a manufacturing site, therefore, is of paramount importance. Industrial real-estate brokers and economists have devoted much energy towards this problem. The following list contains most of the valid economic considerations governing a choice of a plant site. Of course, there are others, such as personal desires of management to locate a plant convenient to the town in which the owner lives.

A Dozen Guides to a Choice of Plant Site

1. Proximity to market
2. Proximity to raw material
3. Adequate labor supply
4. Cheap and plentiful water, power, and other utilities
5. Low insurance rates
6. Favorable ratio of taxes to services provided by state and local government
7. Community spirit
8. Attitude of community favorable to company
9. Healthful living conditions
10. Adequate cultural and recreational facilities
11. General laws favorable to business
12. Favorable shipping conditions

In summary, the community can use businesslike methods in selling itself. If your town does not have all the advantages listed above, do your best to provide them through alert citizens' organizations and efficient municipal administration. Then find the industry suitable to your community. The right industry needs no gifts to induce it to use your location, but the wrong one does. *Don't make the mistake of giving away your part of America.*

AIP Meeting Features Redevelopment and Dispersal Needs

URBAN redevelopment in the national emergency, dispersal and new towns, zoning for industry, and research for city planning and housing currently under way, were the major topics on the agenda of the annual meeting of the American Institute of Planners held in Chicago March 30-April 1. More than 200 were in attendance.

Park Forest, a new town for 30,000 people under construction south of Chicago, was visited by AIP members during the conference. Philip M. Klutznick, President of American Community Builders, developers of this project, said that after the first stages of national mobilization, a program directing new industrial plant development into dispersed locations is inevitable.

"It is my confirmed belief that when we pass through these first stages, the natural inclination of industry to decentralize, which has been growing, coupled with the inevitabilities of further mobilization in an atomic age, will result in increased and accelerated industrial and governmental dispersal," he declared.

Nathaniel S. Keith and Carl Feiss, top officials of the Division of Slum Clearance and Urban Redevelopment, Housing and Home Finance Agency, urged the planners to press forward vigorously with projects now in the making. Said Director Keith: "Federal financial aid will be made available for site clearance, for the installation of streets, utilities, and other site improvements, and for the disposition of land, to the extent that these activities can be carried out to completion without interfering with the national-defense effort."

Director Keith asked local public agencies to give preference to projects which will aid present and future defense production and will serve civil-defense needs. On the important question of whether demolition will be permitted, he concluded, . . . "It is premature, to say the least, to assume at this time that redevelopment projects generally will have to be halted short of the site clearance and redevelopment stage, or that only a scattering of such projects can coincide with the objectives of the over-all defense effort."

During the session on zoning for industry, Harold V. Miller, Executive Director, Tennessee State Planning Commission, outlined the program of the National Industrial Zoning Committee. Commissioner Lawrence M. Orton, of the New York City Planning Commission, said that "The importance of sizing up industry and doing right by it through adequate zoning is now a prime concern of our City Planning Commission, and as a result of our studies we may recommend that about 5,000 additional acres, adequately protected, be assigned to commercial and industrial activities."

Re-elected to office in the organization were Paul Oppermann, President; Frederick P. Clark, Vice-president, and John T. Howard, Secretary-Treasurer. Elected to the Board of Directors for three-year terms were Edmund N. Bacon, F. Stuart Chapin, Jr., and John D. Spaeth. Max S. Wehrly was elected for a one-year term to fill a vacancy.

Two comprehensive Institute policy statements, on Dispersal and New Towns, and on Urban Redevelopment, are being circulated to local chapters for further study before approval and adoption.

Maternal and Child Health Progress in New Jersey

FROM 87 per 1,000 live births in 1920, the infant mortality rate in New Jersey dropped to 25.9 per 1,000 in 1949. Simultaneously, the maternal mortality rate showed an even greater percentage of improvement — dropping from 6.1 per 1,000 live births in 1920, to 0.7 in 1949.

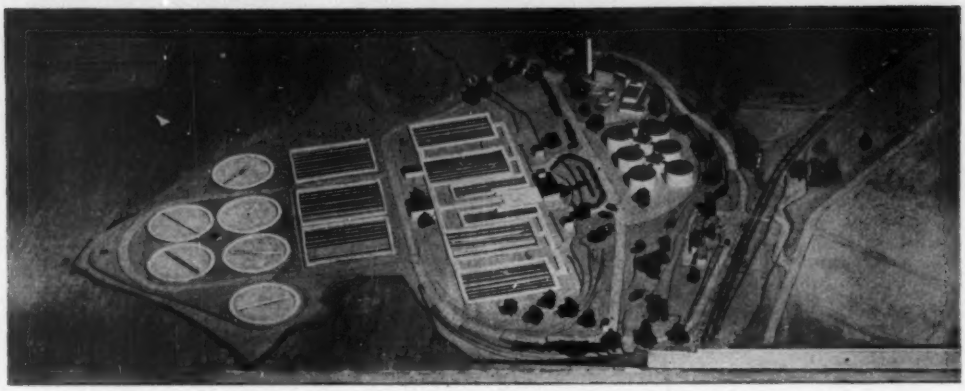
Today the statistics of the New Jersey Department of Health show that two-thirds of the infant deaths in the first year occur in the first week of life, also that, while there has been an enormous reduction in the mortality over one week and under one year, there has been comparatively little reduction in the first day of life.

Recognizing in these figures a challenge for the further raising of New Jersey's health standards, Dr. Julius Levy, Chief of the Bureau on Maternal and Child Health for the State of New Jersey, conducted last month two Institutes on Prematurity—one meeting in Newark on three Wednesday afternoons, and the other in Camden on Thursday afternoons. Leading pediatricians and obstetricians from New York and Philadelphia cooperated.

In his opening statement, Dr. Levy called attention to the fact that the mortality rate in the first day of life for the State varies considerably in different hospitals. Among hospitals with at least 1,000 deliveries in 1949, the mortality rate in the first twenty-four hours varied from 4.7 to 28 per 1,000 live births. If we combine the still births with the deaths in the first 24 hours we find a variation from 20.3 to 52.4 per 1,000 live births.

"The solution to this problem," said Dr. Levy, "requires greater efforts to prevent, or at least postpone, prematurity and to practice such care during the prenatal, natal, and immediate post natal period as will reduce the number of deaths. Since 98% of the births occur in hospitals, this is a clear challenge to all hospitals and their staffs."

Rhode Island commission builds intereceptors and treatment-plant facilities that will prevent destructive pollution of the Blackstone River and the famous Narragansett Bay



Here is the way the Bucklin Point plant will look when completed, based on a model study.

State-Sponsored Sewerage Program Will Reduce River Pollution

By A. A. BONVICIN
Executive Secretary
Blackstone Valley Sewer District Commission
Providence, R. I.

BLACK is a good color if it is used correctly, but it is not the proper color for water in a river, even if the river is known as the Blackstone. The entire State of Rhode Island hasn't liked the blackness, the dirt, and the pollution in the Blackstone River for some time now, particularly when it has meant the progressive befouling of the state's beautiful Narragansett Bay. So by positive state action, an anti-pollution program is now under way that ultimately will make the Blackstone River clear, and will keep Narragansett Bay beautiful.

The state action came in 1947, in the form of legislation by Rhode Island's General Assembly, creating the Blackstone Valley Sewer District. The district embraces the towns of Lincoln, Cumberland, East Providence, and the cities of Pawtucket and Central Falls. The legislation called for a referendum placed before the electorate of the state authorizing the new District to issue bonds amounting to $5,000,000. This referendum passed by a vote-ratio of 15 to 1.

The legislation authorized the Governor to appoint three Commissioners to head the new organization, and it provided that the State Director of Health and the State Director of Public Works each be a member in ex officio capacity. The members of the Commission are William J. Halloran, a Rhode Island businessman; Luigi Scala, Providence banker; and Harold Creedon, a civil and marine engineer. The ex-officio members are Dr. Edward A. McLaughlin and Philip S. Mancini.

Engineering Firm Elected

Early action by the new Commission was that of selecting an engineering consulting firm to prepare plans and specifications for the sewerage improvement. The Commission selected Metcalf and Eddy, of Boston, to furnish this engineering guidance. These engineers, after appropriate study, made the following recommendations:

1. That the bulk of the sewage be brought through interceptor sewers to a location known as Bucklin Point to receive treatment. They also recommended that interceptors be designed for an anticipated load expected in the year 2000.

2. That the Bucklin Point plant be designed for a hydraulic capacity of 47 mgd, and provide primary settling and chlorination before discharge through a submerged outlet into the Seekonk River.

3. That a new 1½-mgd primary treatment plant be built for the treatment of sewage from the central part of East Providence.

4. That certain industrial plants provide their own waste treatment before discharging the effluent to the river.

5. That a complete treatment plant be built at Riverside, after appropriate sewers are constructed, to serve the unsewered portion of East Providence.

6. That complete treatment plants be built at Manville, Albion, and Berkeley for sewered areas below Woonsocket and above Lonsdale.

7. That secondary oxidative treatment features be constructed at Bucklin Point where conditions warrant.

8. That measuring devices be installed at points where the interceptors cross municipal lines, and where industries are directly connected to sewers built by the Commission.

9. That service charges be established, based on the total volume of sewage and wastes intercepted and treated, to make the District self-supporting.

The district embraces a heavily industrialized area. Approximately 24% of the state's industry, employing 23% of its industrial workers, is centered here,

embracing only 7% of the state's area. The present population is 170,700. The engineers expect it to rise to 260,000 by the year 2000. Water use in the District averaged 16 mgd in 1947, or about 100 gallons per capita. Private supplies provided an estimated additional 35 mgd. The total water use is at the rate of 51 mgd, 85% of which is industrial.

System of Interceptors

The commission, basing the big pollution-abatement program on these studies, swung into action. Substantial in its part of the work is the extensive system of interceptors that serve to collect the sewage but are never seen by the public. The complete system of interceptors encompasses the entire district, and will be designed to prevent any polluting liquid wastes from entering the river. One portion of the system will be 7 miles long and have a maximum diameter of nearly 8 feet. Another system, also operating by gravity flow, will be about 3 miles long and have a maximum diameter of 4 feet. A third, reaching into East Providence, will be 1½ miles long, will have a maximum diameter of 4½ feet, and will empty into a lift station near what is known as Omega Pond. Three small interceptors with lengths totalling about 4 miles will complete the system.

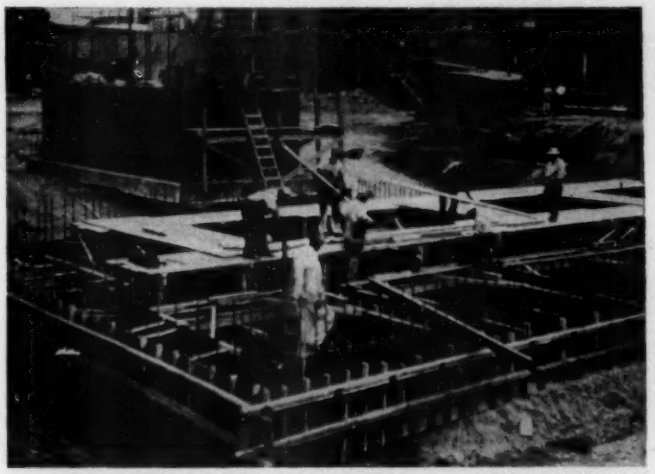
As mentioned previously, the biggest portion of the sewage will be relieved of its pollution load in the new Bucklin treatment plant. While the interceptors were designed for an anticipated population that would normally be expected in the year 2000, the treatmen plant and the pumping station were designed with an eye on 1975. They are yet to be built, however, so that when the addition quarter-century rolls around, there will be no particular problem encountered in enlarging the plant.

Essentially, the Bucklin plant will provide primary settling and sludge digestion. It will have six grit channels, each 60 by 230 feet, equipped with Jeffrey and Link Belt grit-collection and washing equipment. The channels will be preceded by mechanically cleaned bar screens and screenings grinders with Jeffrey cleaning equipment. The sewage will receive pre-aeration in a tank 33 by 212½ feet, and will be supplied by Chicago Pump air-diffuser assembly. There will be two settling tanks, each measuring 68 by 230 feet, equipped with Dorr sludge-collection equipment. The sludge will be delivered to a set of six digesters and will be brought to optimum-digestion temperature, with Dorr heat exchangers using sludge gas to provide the heat. The sludge will be dewatered on a set of Komline-Sanderson cord-type vacuum filters.

The final effluent, before being discharged to the river, will be chlorinated to kill any remaining disease organisms.

To provide some relief at the present time, the first structure to be built is the chlorinating station. There are two of these stations, each with Builders-Providence Chlorinizers to provide a residual of one part per million after 1-hour detention period. On an average, this has required 450 pounds of chlorine per 24 hours.

The new treatment plant and interceptor system are being administered under my direction, as Executive Secretary of the project, and that of C. G. Hammann, Chief Engineer. When the present phase of the work reaches completion, the Blackstone River is expected to be clearer, and the creeping menace of pollution in Narrangansett Bay is expected to retreat.



Here the Omega pumping station will go into operation. Difficult groundwater conditions were overcome during constructin by use of Moretrench well points.

Although the program is still young, some purification is taking place. At left is the author talking with Clarence V. Hickey, right, operating engineer, in front of one of the two chlorinating stations. Above: Beneath the streets of East Providence, workmen are tunneling along the route that will result in the new interceptor system.

How to Care for City Equipment

The material in this article was prepared at the request of the University of Pennsylvania's Institute of Local and State Government and was presented by *The American City* at one of the institute's regular lecture periods. The discussion, by the panel of public-works officials, was drawn from correspondence with them. The panel consists of:

ROBERT L. ANDERSON
Superintendent of Public Works & Village Engineer
Winnetka, Ill.

FRED M. GALLOWAY
Town Engineer
Montclair, N. J.

W. O. JONES
City Manager
Fort Worth, Texas

CLAUDE A. LATIMER
Village Engineer
Mamaroneck, N. Y.

GLENN C. RICHARDS
Superintendent of Public Works
Detroit, Mich.

I. RUSSELL RIKER
Borough Engineer
Princeton, N. J.

ALLAN H. ROGERS
Superintendent of Public Works
Garden City, N. Y.

MILTON ROSEN
Commissioner of Public Works
St. Paul, Minn.

PERCY B. SPRAGUE
Superintendent of Public Works
Valley Stream, N. Y.

ROYAL W. THOMPSON
Director of Public Works
Hartford, Conn.

DONALD C. WAGNER
City Manager
Yonkers, N. Y.

THE AMERICAN CITY interviews a panel of municipal officials and finds out how long equipment should be used, who should be responsible for its care, and how replacements should be fitted to municipal budgets.

How do you differentiate among types of vehicles?

Rogers, Richards, Sprague: Equipment should be classified on a usage basis. For example, two truck of the same model, one used on refuse collection, and the other on street maintenance, will have entirely different repair and replacement schedules.

Wagner: A classification on the basis of service performed is best. Five classifications suggest themselves. These might be fire equipment, police cars, refuse trucks, other trucks, and passenger cars.

Galloway: Four separations on the type of duty are convenient, such as passenger cars, small trucks, heavy trucks, and heavy-construction equipment.

Latimer: Four groups appear useful: Police cars, fire chief cars, that must respond dependably and safely at high speeds. Fire trucks, ambulances, used less often, must be dependable. Department of Public Works trucks that see rugged daily service and have a variety of drivers. Loaders, tractors, and other special equipment.

Thompson: Four groups will tell the story. These would include: (1) Police cruisers, operated 24 hours per day, replaced every two or three years. Sanitation trucks, operated 44 hours per week, replaced every six or seven years, (2) Municipal passenger cars. (3) Routine trucks and pick-ups, replaced every 9 or 10 years. (4) Construction equipment, whose replacement must be judged individually.

SUMMARY: To be orderly, equipment should be classified according to usage, duty or service. The classification should be adjusted to the special needs of the community.

Is age or travel time a better criterion of the need of replacement?

Sprague: Travel time and the amount of usage.

Rogers: Travel time, and even better, motor time in case of refuse equipment and police cars. Other factors must be considered however.

Jones: Performance based on cost of operation and maintenance is the criterion we use. Frequently, older models give better results than new.

Wagner: Travel time, except where equipment is not often used.

Galloway: The real factor is the operating cost.

Latimer: Neither is better if considered alone. Replacement should be a matter of economics. Replace when the annual cost of repairs (parts and labor) plus the cost of lost time of old equipment is equal to or exceeds the annual cost of amortization of the new, plus 6% of the net cost (new equipment cost minus turn-in value of the old).

Anderson: We prefer obsolescence, appearance, and operating cost for a basis. We never rely on arbitrary age or travel-time figures.

Riker: Use, rather than travel time, is the better criterion.

Rosen: Replacement should be based on the type of work performed.

Richards: Age and mileage are the keys.

SUMMARY: The age of equipment is of minor importance when matched against travel time or operating time.

Can an optimum operating age be determined?

Sprague: No, there are too many factors.

Rogers: Yes, within limits, based on local experience. We like to replace trucks once every seven years. Each year, however, the trucks are reviewed individually.

Jones: Yes, if equipment is grouped. Heavy rollers should last for 25 years. Crawler tractors working on sanitary fills should last four or five years. Trucks on street cleaning will last longer than a truck on excavation. Fire equipment should last as long as the building.

Rosen: Yes; a good superintendent will know.

Richards: The optimum age depends on use. Police cars should be replaced every two years. Cars used by election supervisors can serve adequately for 8 or 10 years. Rubbish trucks will give good service for five years, under Detroit conditions. Garbage trucks, however, will last for 8 or 10 years.

SUMMARY: Optimum operating ages can be determined, but they must be used on a general guide, rather than an inflexible rule.

Do current market conditions affect replacement policies?

Sprague: In our case, no. Our community has grown so fast that we need all the equipment we can get.

Thompson: Yes, we replace passenger cars in winter and do not turn in the used cars, but sell them outright in the spring.

Jones: Normally we trade in equipment, but, in the post-war period, it is better to sell the used equipment outright.

Galloway: Market fluctuations should not stand in the way of an orderly program. The market is always variable.

Richards: Car-market conditions have had their influence. We have been able to sell used equipment and get just about as much as new-car cost. Therefore, we have kept our rolling stock as

new as possible. This has not been true of trucks, however.

SUMMARY: An alert municipality should be able to take advantage of current market conditions that will be favorable to the city in whatever it decides to purchase.

How does the availability of spare parts condition the replacement program?

Rogers: This is not much of a factor unless equipment is 15 years old or more.

Jones: Spare parts availability does not materially affect replacement in our city.

Wagner and Riker: In peacetime, we have plenty of spare parts. In wartime, neither parts nor equipment are available.

Rosen: We standardize on trucks, and have plenty of repair parts.

SUMMARY: Few have much trouble with spare parts when they carefully select reliable dealers and transact their business with them.

What provisions should be in the budget for equipment replacement?

Sprague: New York State Law permits five-year bonds for rolling stock. However, 5% of the total anticipated cost must be provided in the current budget. The best program is pay-as-you-go if you can afford it.

Rogers: We try to set aside a consistent amount each year. We take the total fleet, determine the age, and apply the answer to the annual replacement figure.

Jones: We ask each department to submit once a year a replacement schedule. This should carry the equipment, make, model, motor number, miles traveled, cost of maintenance, and statement of needed repairs. This gives us a sound basis for budget recommendations.

Rosen: St. Paul operates a Bureau of Municipal Equipment. Each department is charged for the equipment used and the money is set in a revolving fund for new purchases.

Thompson: We establish rental rates that are charged against the departments using the equipment.

Richards: No separate fund is used. Replacement is in accord with a plant established by the Bureau of the Budget.

SUMMARY: Provisions for new equipment have a better opportunity for action in a budget when they are supported by convincing arguments that the use of the new equipment is of measurable benefit to the city.

What agency should supervise replacement?

Thompson: The Public Works Department, through a centralized garage. The finance department handles accounts.

Rogers: We centralize it in the Public Works Department.

Jones: In Fort Worth, the city's Chief Administrator makes the decision.

Galloway: It is possible to operate through a centralized bureau. Montclair operates through a Bureau of Equipment Operation.

Rosen: In St. Paul, the Bureau of Municipal Equipment has complete supervision.

Richards: The Central Maintenance Division should handle the work. Possible exceptions are the Water Board, Fire Department, and Street Railway Department.

SUMMARY: There appears to be a growing tendency among cities to centralize equipment operation and maintenance and replacement.

How should one relate maintenance procedures to a replacement program?

Thompson: Equipment rentals offer the most practical method. Expenses increase as the equipment ages. Thus rental rates must cover maintenance.

Jones: One should replace defective units or those that have been in a bad accident. Major overhauls are a burden to a maintenance shop.

Richards: We keep a maintenance record. When costs rise above a certain figure, the equipment is set aside for replacement.

SUMMARY: The useful practice of each department "renting" equipment from a central "owning" department is a significant trend today and gives guidance to replacement procedures.

What operating records should one keep for each vehicle?

Rogers: We don't believe in encumbering our staff with too much paper work. Trip or daily records are of little value. We like monthly records that cover tires, gas, repairs. In more complicated systems, overhead, such as insurance and depreciation, also can be included. We encourage "trouble reports" to prevent major breakdowns.

Jones: We require records necessary to show operating results such as performance of operators, yardage moved, jobs completed. These give us guidance on whether we should own equipment or award contracts.

Latimer: Our records show mileage, work done, daily driver reports, cost per mile, cost per ton-mile, cost per operating hour, and number of operating hours per year.

SUMMARY: Operating records help. But these should not be so detailed that they become burdensome. They should be designed to show quickly the useful performance of the equipment.

What cost analyses should be made for each type of vehicle?

Rogers: At the end of the year, and monthly if desired, the operating cost should be calculated in terms of total and per mile. It should include tires, gas, oil, and repairs. It should not necessarily include body and accessory equipment.

What are some typical replacement practices?

Rogers: Garden City has adopted an initial seven-year schedule for most trucks; approximately two years for police cars, and four to five years for passenger cars and pick-ups. One will have difficulty comparing large and small jurisdictions, and even jurisdictions of the same size in different localities.

One of the most important factors in proper maintenance of equipment is providing good storage area. Seen here is part of the Princeton, N. J., truck fleet.

How a Performance Bond Kept the Show Going

When contracts for over $1,200,000 were defaulted in the middle of a $12,000,000 sewerage project, the bonding company put a local contractor to work without delaying the completion date

THE VITAL importance of a contractor's performance bond, and the tower of strength that a bonding company can be in time of need, were demonstrated when a defaulting contractor threatened the progress and completion of the City of Tampa's $12,000,000 sewerage project.

Many Contracts

The project was split into many contracts, all supervised by the city's engineers, Greeley & Hansen, of Chicago. The sections in default were Contract 19, let in June 1950 for $905,000.50, and Contract 22, let in September 1950 for $299,207.10. When the contractor defaulted, the first contract was about 22% completed and the second about 17%. The contractor was unable to meet his February 26 payroll, and work was stopped.

Contract 19 was in three divisions, totaling 16 operations, as follows: three digestion tanks completed; work in progress on a sludge-pumping station and control building; materials furnished but no construction outside cast iron pipelines; no work on superstructure of sewage-pumping station, grit chamber, and by-pass structure; overflow structure and headwall, venturi meter box; some materials delivered, pipe being manufactured, and little work done on 54-, 72-, and 84-inch reinforced-concrete pipelines; excavation and piles driven for effluent building, and nothing done on chlorine-storage yard.

Contract 22 consisted of eight pumping stations in an 8-mile stretch. Some excavation and the pouring of some concrete had taken place at two of the sites.

The performance bond was supplied by the National Surety Corporation, of New York, and first intimation of failure reached its headquarters on February 8, 1951. With work still proceeding, the Corporation had its Dallas and Houston men talk to the contractor and obtain his permission to call in their accountant. On February 16, their consulting engineer, Edward A. Keeler, of New York, arrived in Florida, and until February 23 made an investigation and appraisal to determine what had been performed, the status of the two contracts, who were the creditors and in what amounts for what materials and services, and what was required for completion. Meanwhile, construction rocked along until February 23, when the contractor admitted that he could not meet the February 26 payroll of $7,000 and $167,000 in unpaid bills. Then the city telephoned the bonding company for help.

Bonding Company Comes to the Rescue

The bonding company could take one of two courses. It could employ another contractor who would be acceptable to the city, and who would pick up the contracts at the point where they were dropped. It could readvertise for bids on the unfinished work and require proof of every item of expense to date. The alternative would call for new designs, specifications, lettings, with work at a standstill for one or two months, while subcontractors quit and the manufacturers of machinery for the contracts might well have turned to more lucrative or dependable orders.

The bonding company did what it insists is its definite policy to do whenever possible. It carried out, with no quibbling, the spirit as well as the letter of its obligation. It immediately arranged to establish an account in a Tampa bank to meet the defaulting payroll and accruing payroll. It also authorized the city to carry on emergency operations — such as dewatering the sites — necessary to the prompt continuance of the contracts.

Fully recognizing the city's plight, because an emergency situation had been declared, the company arranged for completion by one of the strongest local contractors, Paul Smith Construc-

CITY OF TAMPA

CURTIS HIXON, MAYOR — EXECUTIVE OFFICES — FLORIDA LEAGUE OF MUNICIPALITIES

Mr. Alden W. Welch
Research Editor
The American City
470 Fourth Avenue
New York 16, N.Y.

March 23, 1951

Dear Mr. Welch:

In reply to your letter of March 20 regarding performance of the National Surety Corporation when one of their clients ran into financial difficulties, I must say that the National Surety Corporation have been most cooperative. They were in the city promptly and made arrangements to carry on the work of their client immediately and there has been practically no delay in this construction.

The amounts of the defaulted contracts are as follows: Contract No. 19, let in June, 1950, $905,000.50 and Contract No. 22, let in September, 1950, $299,207.10.

In all fairness to Mr. Roth and Mr. Pieper, of the National Surety Corporation, I will say that I would not want to deal with any finer gentlemen than these two and no one could have done a better job in taking over their responsibility as surety than this organization.

We are indeed happy to say that our dealings with this Corporation have been outstanding.

Yours very truly,

Curtis Hixon

Mayor

CHicag

A Timely Public Service

We do not often single out a private business enterprise for special commendation, but it is sometimes fully merited. It is proper and just in the case of the timely public service given by the National Surety Corporation, in the case of the city's sewer system.

When the original contractor for a large part of the sewer construction job encountered financial difficulties and had to default on the contract, the surety company stepped in immediately upon the call of the city officials and prevented a complete stoppage of the work, which involved the disposal plant and eight outlying pumping stations. The company carried the payrolls and assured material dealers that past-due accounts would be protected.

Officials and engineers of the National Surety Corporation came promptly on the scene from the head office in New York and, with the cooperation of the local agent and the city officials, made a new contract with a strong local construction firm to take over and finish all the structures involved in the defaulted contract. It is not practical for all contractors to have sufficient financial resources to make owners safe from any loss, but it is practical and required by law that surety companies be financially able to indemnify the owners against any loss through default of contractors they insure. That's just what this company did in the Tampa sewer contract—and we commend it for giving a saving and timely public service to the city of Tampa.

Editorial from the Tampa *Morning Tribune*, March 8, concerning project.

tion Company, who was approved by the city. This agreement was reached February 28, and on March 5 the new contract was signed and the new contractor was on the job.

The city's Board of Representatives had heard the terms of the proposed contract on March 3, and each member stated that he would vote for an approving resolution as soon as the law allowed, which was on March 6.

Meanwhile, as can be believed, creditors were besieging the city with inquiries. The city was told by the bonding company to reassure these creditors. This was immediately done in the form of a resolution passed by the Board of Representatives accompanied by a letter signed by the consulting engineers, the National Surety Corporation, and the City of Tampa.

Despite any delays occasioned by the breaking down of progress by the former contractor, there is now every expectation that the original completion date will be met. The appreciation expressed editorially by the Tampa *Morning Tribune* of March 8, and by Mayor Curtis Hixon, is not perfunctory. On the contrary, according to the recipient, it is almost unique. For the National Surety Corporation says what it did is commonplace with the organization, and that a contemporary and parallel case, devoid of expressed recognition, is happening right now, elsewhere in Florida. Thus, Tampa appears to be one of those rare cases which gives the doctor credit.

Georgia Legislature Streamlines City-County Government

STREAMLINED local government is on the way for residents of metropolitan Atlanta. Recent action by the Georgia Legislature clears away much of the confusion and duplication which has existed for decades among the city and county governments as well as the school systems of the area, the International City Managers' Association reports. Under the newly adopted state laws, functions of the city and county will be reallocated, and geographic boundaries of corporate Atlanta will be revised to bring them closer to physical reality.

Parts of the so-called plan of improvements laws go into effect immediately, but the bulk becomes effective January 1, 1952. Here are chief points of the plan: (1) Atlanta's city limits are extended to take in some 82 square miles of outside territory, including five heavily residential areas. Some 100,000 people live in the area to be annexed.

(2) Overlapping and duplication of city and country governmental functions will be eliminated with the city taking over all city-type services, including fire, police, parks, and sanitation. The county will take full responsibility for health services throughout the area.

(3) City and county government employees may be transferred from one government to the other without loss of seniority, job rights, or pension rights. A joint-performance committee is to be set up to supervise the transfer of departments between the two governments, and civil-service systems of both are being studied in an effort to establish an integrated city-county civil service and pension system.

(4) County taxes are to be reduced on urban residents to compensate for increased city taxes necessary to supply services to the annexed area. Homestead exemptions of $2,000 are also extended to city homeowners.

Although school departments will not be merged, 38 county schools will become part of the city system next September.

Montclair Library Uses TV

MORE about racketeering to make gambling and its prevention clearer to the average layman, was presented on television by Samuel Allcorn, Jr., town counsel of the Town of Montclair on a Montclair-sponsored program. Books from the library, which enlarge the understanding of gambling and its prevention, were incorporated into the program.

Mr. Allcorn was formerly law secretary to Arthur T. Vanderbilt, Chief Justice of the Supreme Court of New Jersey. In addition to carrying on a private practice and serving as town counsel, he is now an instructor in the Rutgers University School of Law, in Newark.

The television program was seen over WATV, Channel 13, Tuesday, April 3, from 3:00 to 3:30 p.m. Fred Sayles and Miss Brooke Stevens are host and hostess of the program, which is called Homemaker's Guide.

Public Housing Payments in Lieu of Taxes Works Out to City Advantage

THE Housing and Home Finance Agency points out that cities generally have found that they receive more in payments in lieu of taxes for new low-rent housing than the taxes that were assessed against the slum housing they replaced. The difference, of course, varies from place to place. But a few citations are illuminating. St. Louis, for example, has reported that its payments in lieu of taxes have been as much as 250% greater than the taxes formerly assessed, but never collected in full, on the sites of its two projects. Memphis reports that payments in lieu of taxes during the past 12 years totaled $615,948, which was $242,655, or 65%, more than the city treasury would have received from the former private owners if they had paid 100% of the taxes assessed against them during those same 12 years. Memphis' 1950 payment in lieu of taxes amounts to $95,444, as against $35,649 in assessed taxes that could have been anticipated under private ownership. San Antonio's payments in lieu of taxes in 1949 amounted to $63,193, an increase of 199% over the $21,163 in taxes paid by private owners when the San Antonio Housing Authority bought the sites originally.

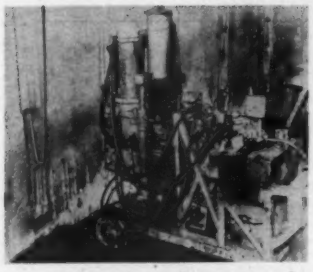
Community Leadership Institute—May 30 to June 2

THE New York State Citizens' Council will hold its Seventh Annual Institute of Community Leadership May 30–June 2 at the New Adler Hotel in Sharon Springs, a community known for the purposeful job it is doing in solving its problems and building its future. Harry J. Carmen, NYSCC President and Dean Emeritus of Columbia College, will serve as Institute chairman. The Institute will bring together some 200 citizens—lay and professional—from throughout New York State and beyond, interested in working out more effective ways to solve community problems. Discussions will be introduced by community "case studies," with representatives from communities of different size and type analyzing their problems, achievements, plans, and way of working together. Special study groups set up by the Council on public education, health, international education, and economic education will work during the Institute and present reports for discussion and revision.

More Storage Is the Answer

Prestressed reservoir, holding 1,700,000 gallons, gives added water reserve for peak demands without increasing the pumping capacity

By H. B. WILDSCHUT, *City Engineer*
Wauwatosa, Wis.



This machine places the stress on the inside wires, which thus places the concrete wall in vertical compression.

WAUWATOSA, WIS., a residential community with a population of 35,000, lying on the westerly limits of Milwaukee, has to meet its water-supply problems in a manner reflecting the activities of a residential area. This means that we must anticipate a water use corresponding to residential areas and not industrial, and we have to plan our facilities to be harmonious with residential construction.

The new storage reservoir that we have just completed meets these specifications. But to understand it thoroughly, this analysis of the system itself will be helpful.

Uses Well Supply

The city's water supply comes from deep wells, the first of which was drilled 50 years ago. We now have seven major wells distributed throughout the city. Our custom has been to drill a new well in the area experiencing the greatest growth. Because of this policy, the city has not needed to develop a major distribution system as is necessary in most cities obtaining water from a single source. Most of the water mains are 6 inches in diameter.

During most of the year, our average water use varies from 2½ to 3 mgd. However, during the lawn-sprinkling season, water use will jump about 300% to reach peaks of 10 mgd. This, of course, places a considerable strain on both the distribution system and the water-storage system.

In order to provide the large amount of water required during fairly short intervals, the city has provided appropriate storage. We feel that providing storage is a much more economical method than drilling more wells.

To supplement our storage capacity, we recently constructed a new underground water-storage tank capable of holding 1.7 mg. This gives the city a total storage of over 6 mg. The pumping capacity during extended periods of pumping also amounts to about 6 mgd, and therefore the city will be able to take care of a demand of approximately 12 mgd with the new setup.

The new tank was constructed on a high area about a mile from the nearest storage. Prior to the construction of the tank, a new well and pumping station were constructed at the same point. With the new arrangement, an area that formerly suffered unusually low pressures and lack of water will now be served adequately.

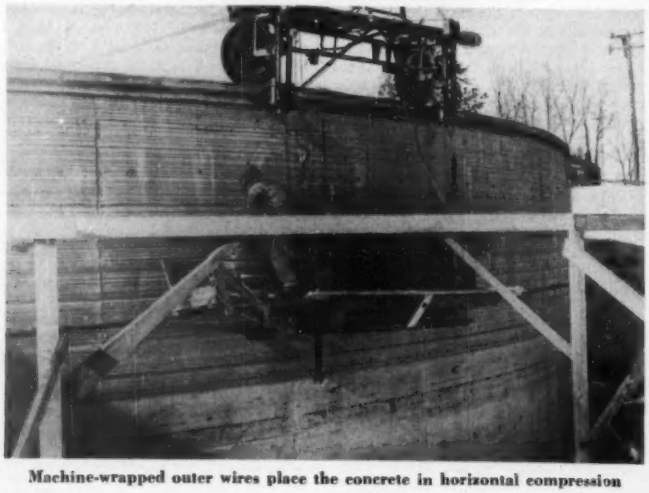
Tank Placed Underground

Deed restrictions prevented our building a surface or elevated storage tank in that neighborhood. In order to get the necessary signed permission from near-by property owners, it was necessary to put the reservoir entirely underground and landscape it as a park. It did not seem feasible to install the standard prestressed tank, with a thin bottom and spherical top, underground. In case the under-tank drainage system became fouled, the thin bottom might be pushed up if the groundwater was high when the tank was empty. And to entirely bury the spherical top would have required a much deeper excavation and probably a heavier top to carry the extra load.

Therefore, the new tank has prestressed walls, a flat top, and a 9-inch-thick bottom reinforced with ⅝-inch-diameter rods. The bottom was designed to take a hydrostatic head of about 10 feet, in case the tank emptied at a time when the groundwater was high.

Drainage

Bank-run gravel and 3 inches of crushed stone were placed under the tank and drained with a 6-inch perforated, bell-and-spigot vitrified-clay-pipe tile. These drain to a sump which is emptied with a 700-gpm, float-controlled pump. In addition to the drains under the tank, there are six 2-foot-diameter "pipes" of crushed stone spaced at equal intervals around the tank. Eight



Machine-wrapped outer wires place the concrete in horizontal compression

feet above the footing these "pipes" are connected with a ring of crushed stone.

While the top and bottom of the tank are of ordinary construction, the walls are of the prestress design. They are 10 inches thick and 25 feet high. Inside the tank, the vertical stressing was accomplished by casting slots on 2-foot centers, with anchor lugs at the top and bottom. Four strands of #6 galvanized, high-tensile wire were accurately cut and attached to the top lug. A special hydraulic machine then stretched the wires so they could be attached to the lower lug. With plastic flow, concrete shrinkage, and creep, it is estimated that the design stress will be 100,000 psi. The wires were then covered with pneumatic mortar so that the slots were entirely covered.

Because of the snow and the cold weather in the Midwest last winter, construction was considerably delayed. Sheet-piling, necessary to prevent caveins at the north end, was in the way of the exterior prestressing machine, so the builder started winding from the top. The wire as it is pulled through the die is reduced from .162 inches in diameter to .142. Traction for the motor-driven scaffold is provided with a chain and sprocket system. When nearing the end of a coil of wire, the tight wire is clamped to the previous loop with 4 bolted clamps. Slight deviations in the wall permit getting the clamps under the wire. The new coil is attached with a "torpedo" splice, which is a short tube with grippers inside which prevent the wire from coming out. There are about 7,000 feet of wire in a coil. After the entire tank is wrapped, the clamps can either be removed or not removed before covering with Gunite. Near the bottom, there are 55 horizontal wires per lineal foot, while near the top there are 8 wires per foot.

Top Construction

Because of the flat top, with just enough pitch for drainage purposes, the top is supported with sixteen 20-inch diameter columns. At the bottom, the keyway in the base is sloped toward the inside. The asphalt at the bottom plus the slight slope aided the tank to move inward about ¼ of an inch when the outside wires were tightened. The slot was caulked with oakum and mastic filler.

The joint at the top was made waterproof by casting a ¾-inch slot, 1½ inches wide in the top of the wall. A 24-ounce copper expansion strip was embedded in the wall and extended up through the slot so it could be bonded to the top. Before pouring the top, the wall was covered with asphalt and the slot filled.

For the walls, the minimum strength of the concrete was specified as 4,500 psi after 28 days, while the top and bottom were 3,000 psi.

The concrete construction was the responsibility of the L. G. Arnold Company, of Eau Claire, Wis., while the wires were installed by the Preload Central Corporation, of Kansas City, Mo., under the the design of the parent company. Preload Enterprises, Inc., of New York City. General design and supervision was the writer's responsibility.

Putting the Mostest Data On the Leastest Bill

B250 DEC 1950

MR MARK E PHILLIPS
EAST 3RD ST
RADFORD VA

METER READING PRESENT	METER READING PREVIOUS	CONSUMPTION*	CHARGE	SERVICE CHARGE	SEWER
7092 EL	7048 EL	44 EL	206 EL	100	50
3055 WA	3037 WA	18 WA	125 WA		
					481

PAY THIS AMOUNT

*WATER METER READING AND CONSUMPTION IN 100 GALS.

THIS ACCOUNT DUE AND PAYABLE ON 15TH OF MONTH. SERVICE SUSPENDED IF NOT PAID BY 20TH OF MONTH.

CITY OF RADFORD
DEPARTMENT OF PUBLIC UTILITIES

EL ELECTRICITY
CE COMMERCIAL ELEC.
WA WATER
PW POWER

A postcard carbon copy of this bill is mailed to the consumer.

W. A. WOODWARD
City Manager
Radford, Va.

BEFORE selecting the postcard bill shown here and the type of billing it calls for, we studied utility billing methods and the various machines available for the work. Originally it was planned to use the postcard type of bill that has a stub carrying the same information as the bill that is mailed to the consumer. The number of items we wanted to put on the bill, however, made the stub form impractical.

As shown in the illustration, we bill residential and commercial electricity, power, water, sewer charge, and service charge. Moreover, the machine is set up to handle a garbage charge when the time arrives to make such a charge. The present bill has proved satisfactory in every way, including the public reception of it.

Probably the greatest advantage of this particular system is the saving in postage and the cost of the bills themselves. The government postcard obviates the purchase of bill forms, eliminates the expense of operating the postage machine, and takes a 1-cent stamp instead of a 3-cent one as with the old bill. Our Utility Department sends out 3,000 to 4,000 bills each month, and savings over the old method will pay for our new Underwood Sundstrand automatic accounting machine in a comparatively short time.

Machine operation is simple and automatic. The billing clerk puts the present and previous meter readings into the machine. The machine makes the subtraction and prints the consumption in kilowatt-hours or gallons. A key denotes whether the item is water, electricity, or power. When the last item on each line is printed, the carriage automatically reverses and moves the bill into position for the next line. When the final item is printed, a touch on the motor bar causes the bill total to print automatically.

During billing, it is common practice to produce in some form a carbon-copy transcript of all entries on the bills. A continuous-carbon, interleaved tally roll is used for this purpose. This transcript roll serves as a check at any time. It is totaled after billing all accounts in each of the meter books, and each class of item put into the machine is totaled separately from the others in money value. The machine also provides that, in the event an error is made in one or more bills, the stored totals may be corrected so that the correct totals will be printed on the transcript.

Though used only by the Utility Department at present, this machine is adaptable for use in the work of the City Treasurer, the Commissioner of Finance, and the City Auditor.

Audible Signal Devices for Air-Raid Warning

AMPLE warning of an impending attack or approaching emergency of any kind enables the properly instructed individual to take immediate steps for his own safety. This can greatly reduce the probability of panic; reduce congestion of communication lanes, and should reduce the number of victims and problems to limits within which the civil-defense organization is staffed and equipped to handle efficiently.

The air-raid warning system must not be lightly regarded. Its insufficiency or failure could pose a problem too big to handle. It should be given consideration immediately; but until a well-planned system is placed in operation, temporary utilization of any existing warning device may be advisable. Continued dependence on makeshift methods, however, would be hazardous and confusing, and should be discontinued in favor of a real warning system as quickly as time and material permit.

Mistakes were made by civil-defense organizations in World War II, chiefly from inexperience with audible signal devices. Mistakes may be made again, but they should be fewer — for many of the same personnel are active in this emergency.

Obstructions to travel of sound waves increase with population density. Business centers of large cities are built up more solidly and with larger structures, housing a greater number of people, and increasing the complexity of complete warning. Moreover, these structures, honeycombed with partitions and supported by heavy walls, are often aligned solidly side by side and story upon story to make the streets veritable canyons. External sounds tend to be confined to the canyons and are baffled by walls and partitions which are not open to street areas. Thus, obviously, the intensity of a sound level varies from district to district. Where it is already intense, the warning signal must be still more intense or it may not be heard. Thus, for example, it might take a minimum of 70-decibel strength to constitute a warning signal where the sound level locally is 60 decibels.

The measurement of sound intensity of a warning device must guarantee that the warning can be heard regardless of local conditions, and regardless of variable atmospheric conditions. Tests at 100 feet from the device are conducted by the National Bureau of Standards, under conditions which make sure that the sound intensity is invariable, so far as minimum is concerned. From that it follows that, in unobstructed areas, since sound devices lose 30 decibels from source to 100 feet, and certain additional decibels at greater distances, it can be determined exactly, and under even the worst conditions, precisely how far from the device the sound intensity is, say, 60 or 70 decibels. If, then, for example, it is desirable to have the warning sound a minimum intensity of 70 decibels, it can be determined precisely how far under the worst conditions the device can be heard at that intensity. In addition it can be determined whether the device is or is not directional: i.e., can be heard only in front of the device or can be heard with equal strength in any direction within the 360 degrees around it. If a device is non-directional and can be heard with equal intensity in any direction, then it is possible to define correctly, under any and all conditions, the exact perimeter at which the device will produce a given sound intensity, such as 70 decibels. The selection of the intensity at the perimeter depends on the local sound intensity which must be exceeded.

Types of Warning Devices

For completeness of warning there are bells, buzzers, horns, whistles, sirens, and loudspeakers. Some are impractical for most air-raid warning services, others are highly satisfactory. They should be examined in the light of what an air-raid warning system should be:

1. Dependable
2. Distinctive
3. Instant acting
4. Powerful
5. Simple to obtain
6. Simple to install
7. Simple to operate
8. Simple to maintain

In addition, the signals usually should be capable of remote or centralized control. Operation and maintenance should require a minimum of manpower and time. Signal devices should not use or require complicated, special, unusual, or scarce parts and should not require specialized training or high technical skill for supervision, maintenance, or repair.

Bells fall into two categories. Large bells, such as church or school bells, are usually manually operated. Electric operation and centralized control are impractical. Small bells or gongs are in widespread commercial use. Sound output limits them to small or confined areas in which there would be a chance of confusing them with telephone bells, burglar alarms, etc. Buzzers are really small, low-volume bells or horns. Their use is limited to confined areas with low noise levels such as offices.

Air Horns

The manufacturers of air horns recognize that the signaling devices should be capable of operation either individually or in unison from remote points, and manually at each signaling device in case of disruption of the remote control means. For truly adequate results it is as important to shoot at the minimum number of horns needed as to be unthinkingly lavish. Every horn should have a place; an omission is a dead spot. The lavish method means needless supervision, maintenance, and operation.

Again—the alarm must be recognized throughout the area, by sheer sound or by a distinctive and unmistakable tone. The air horn can sound coded signals in sharp, clear, distinct blasts which can also be used to call attention to localized emergencies. The air horn, not producing the electric-siren wail, is particularly suited to this specialized code signaling by long and short blasts. It is capable of maintaining reserve capacity by gasoline-engine-driven air compressors independently of electric power.

The locational possibilities are quite flexible. The horns operate on air pressure of 15 to 80 pounds, in connection with an air compressor found in many apartment buildings and in a municipal building. They can be operated by electric solenoid equipment or, should this fail, by manual air-release control. Installation to available compressors is simple and inexpensive. One non-directional air horn producing 113 decibels, made exclusively for air-raid warning, uses 23 cfm of air on a constant blast and will, therefore, operate from the 1½-hp, 50-60-cfm compressor commonly found at gasoline filling stations.

The efficacy of air horns is indicated by the fact that one manufacturer has sold them to more than 1,000 municipalities for fire-alarm signaling. They are also used for fog signaling on the Great Lakes and along the sea coast, and by

the United States Navy and the Canadian Ministry of Defense for emergency signaling. In built-up areas they will serve one square mile, and up to four square miles in less congested areas.

The carrying power and arresting quality of the sirens powered by gasoline or steam are emphasized by the claim of an air-horn manufacturer that his horn was exceeded in sound intensity only by the Chrysler victory siren (gasoline driven) and the Foster steam siren. The Chrysler siren cost thousands of dollars and is no longer made. There is today one manufacturer of gasoline-driven sirens; Jersey City purchased eight from this firm in February. The steam siren mentioned, installed in many municipalities during the last war, is in production today. It produces 125 to 130 decibels at 100 feet, and operates on steam at 75 to 200 pounds pressure.

Electric Sirens

Sirens produce their sound by rotation of one ported number within a similarly ported stationary member. They combine the effects of a rotary air pump and a chopper. The device has a characteristic up and down wail that usually indicates emergency.

Electric sirens consist primarily of a motor and the two sound-producing members. They require a local power supply, but can be controlled remotely or centrally by relays, often over existing signal or telephone circuits. Temperature and weather variations have little effect on the properly designed electric siren. Maintenance, other than an occasional inspection, is almost nil. They are available in a variety of capacities.

Loudspeaker systems amplifying an unmodulated tone or amplifying the sound of a siren or similar device, can be made to produce excellent volume for all practical needs. However, as with other signal devices, in congested areas a system of units is necessary. Central control is no problem. A variety of signals may be produced and numerous capacities of speakers are available. Power supply is no problem. Loudspeakers in themselves are not complicated, but the amplifiers do require radio knowledge, radio parts, and radio supervision. Delicacy of many such parts, and the number and variety of parts per amplifier, must be considered from the standpoint of manpower, technical skill, and availability of maintenance, installation, and inspection.

Start with the Fewest

You will probably require more than one signal and also more than one size or type in your complete system. Therefore, install your minimum requirements first, in order then to determine by this your full needs. With this goes a word of caution, which you will fully understand. Before testing one or a few scattered signals, tell the newspapers that it is a test and not an air-raid rehearsal. You are sure to find results below general expectancy unless you lower the expectancy level in advance. If your test provides better results than anticipated, it will redound to your credit.

When your civil-defense organization first comes to realize how many signals you will require and analyzes the cost, the figures may seem pretty high. Unless your community has a basic system left from World War II, you are starting from scratch and it may be quite a large project. Whether equipment for this method costs $1 per capita, 50 cents, or 25 cents, citizens had better insist that this basic life-saving protection be adequate. We may face these threats for years. Plan your system for the duration of emergency—maybe a long, long time.

In conclusion, there is no signal which can project a blasting tone for 20 miles and costs $50, $500, or $5,000. Except in small towns, a municipal air-raid warning system has to be a *system*, like the water system, the lighting system, and the fire-alarm system. It hasn't had the time to grow with the community from year to year. Yesterday it did not exist. Tomorrow it must be there complete. It is a new venture, a new major project, a vital undertaking. Unfortunately, it is not likely to be a temporary matter.

Leading Manufacturers of Air-Attack Alarms Contributing Data for This Article

B & M Siren Manufacturing Co.,
763 E. Pico Blvd., Los Angeles 21, Calif.
Electric 2-hp vertical; 5- and 7½-hp horizontal

Biersach & Niedermeyer Co.,
1937 N. Hubbard St., Milwaukee, Wis.
Gasoline-driven sirens

Federal Enterprises, Inc.
8700 S. State St., Chicago 19, Ill.
Federal vertical electric sirens

Foster Engineering Co.,
835 Lehigh Ave., Union, N. J.
Foster steam sirens

The Gamewell Co.,
Newton Upper Falls 64, Mass.
Diaphone compressed-air horn

H. O. R. Co., Inc.,
40 Broadway, Staten Island 10, N. Y.
Electrical and mechanical sirens

Keystone Signalphone Co.,
53 Marion St., Pittsburgh, Pa.
Signalphone air horn

Leslie Co.,
Lyndhuret, N. J.
Leslie-Tyfon air horns and steam whistles

The Sireno Co., Inc.
214 William St., New York 7, N. Y.
Warning sirens of ½ to 5 hp

Sparton Automotive Division,
The Sparks-Withington Co.,
50 W. North St., Jackson, Mich.
Sparton 3-hp and 1/3-hp sirens

The Sterling Siren Fire Alarm Co., Inc.
64 Allen St., Rochester 6, N. Y.
Sterling electric sirens

Illinois Voluntary Certificates For Swimming Pool Operators

THE ILLINOIS Department of Public Health is announcing a voluntary certification program for swimming-pool operators, whereby any Illinois pool operator, upon application to the Department, will be issued a certificate of competency, provided he meets the qualifications and requirements for the particular classification (A, B, or C) for which he applies. The Department feels that such a program will result not only in benefiting the health and welfare of each community in which a swimming pool is located through the promotion of efficient and economical operation of the pools, but will also be a means of effecting for the pool operator some amount of recognition for experience, qualifications, and the service he has rendered, which ordinarily is not accorded him.

C. W. Klassen, Chief Sanitary Engineer of the Illinois Department of Health, reports that no swimming-pool operator will be required to apply for a certificate of competency. The obtaining of such certificates is purely optional and voluntary on the part of the pool operator. There are no assessments or fees in connection with obtaining such a certificate.

The classes of certificates to be issued are A, B, or C. To obtain the higher ratings of A or B, the experience will have to be of a definitely responsible nature over a specified period of time. The Class C certificate would be issued to those with a minimum of two seasons' experience in the operation of an outdoor pool, or one year's experience in the operation of an indoor pool.

Applications received from operators will be reviewed and passed on by a committee consisting of several pool operators and the Chief Sanitary Engineer of the state.

Detailed information is being mailed to every pool operator in the state, together with an application form upon which to enter the pertinent data requested.

Operators' certification is part of the State's swimming-pool-sanitation program. The program includes periodic surveys of the hundreds of pools in Illinois by state and county sanitary engineers; the issuance of classification certificates for the pools in accordance with rating of available facilities and control exercised, based on the engineers' surveys; and consultation service to operators, and to engineers and architects concerned with swimming-pool construction or improvements to the end that equipment and operation may be in keeping with adopted sanitary requirements and good public-health practice.

Rochester, Minn., Builds Hinged-Pier Bridge

Hinged piers for a continuous-girder reinforced-concrete bridge allows the use of smaller columns, provides greater waterway

ROCHESTER, MINN., has a new bridge spanning the Zumbro River at Mayo Memorial Park. The bridge has three spans, and each rests on piers that are unusual for their slenderness.

The bridge serves a street that is built on a curve. The center line of the bridge intersects the center line of the river channel at an angle of 47°12'.

Flash Floods Anticipated

The Zumbro River drains an area of approximately 136 square miles above the bridge, and Bear Creek, which enters the Zumbro River just below the bridge, drains an area of approximately 79 square miles. Both drainage areas are hilly and the runoff is rapid, so that both streams are subject to flash floods. The river has frequently overflowed its banks, and therefore the bridge design had to give the utmost in water-course area. Piers had to be narrow and girder depths shallow to avoid the expense and awkwardness of changing the grade at the street.

A channel change in the river was included in the project. This involved moving and extending the stone retaining wall on the southerly bank of the river, and constructing a new, reinforced-concrete retaining wall along the northerly bank. This provided a 155-feet-wide channel between walls. The bridge, because of the angle at which it crosses the river, is approximately 220 feet in over-all length, measured along the center line. The four-lane roadway is 44 feet wide, flanked by a 6-foot sidewalk on each side. The over-all width is 60 feet.

The bridge is supported on steel H piles, about 55 feet long, driven to rock, capped with reinforced-concrete footing blocks. The footings for the abutments are continuous, but the footings for the two river piers consist of five separate blocks each, with each block supported on a cluster of six piles. Each footing block supports a combination concrete-and-structural-steel column 3 feet square, which is placed normal to the center line of the bridge on two lines parallel to the center line of the river to form the two river piers. These separate columns are connected by a web wall which is 10 feet high and 10 inches thick. This wall extends downward from the bottom of the girders into the bed of the stream to prevent lodgement of drift around the columns, and to give the appearance of continuous piers.

The top of the roadway is only about 14 feet above the stream bed, and the top of the footing block is about 18 feet below the top of the roadway. The columns are about 12 feet high from the top of the footing to the bottom of the girder, since girders are about 6 feet deep where they connect with the bridge pier columns.

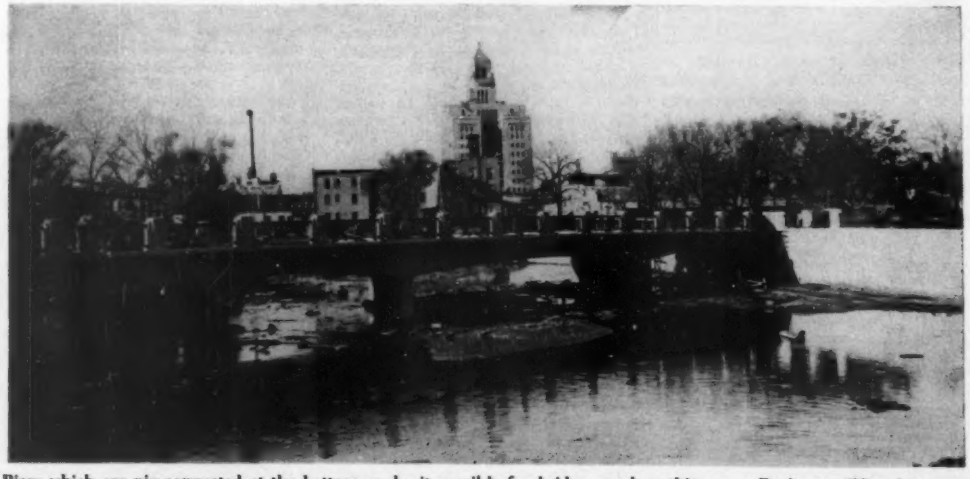
Design Analyzed

Two reasons for adopting the combination structural-steel and reinforced-concrete columns for the piers are:

1. To make practical the use of a hinge at the bottom of each pier column.
2. To make the columns as small as possible to provide maximum area of clear waterway.

Each pier column is pin-connected to the footing to reduce the stiffness factor, and hence the bending moment in the pier columns, by one-half. This permits much smaller pier columns than would otherwise have been required.

The girders in the center span are 82 feet long center-to-center of support,



Piers which are pin-connected at the bottom, make it possible for bridges, such as this one at Rochester (Minn.) to provide greater waterway areas, despite the fact of being at a relatively short distance from the river bed.

and the girders in the two end spans are about 66 feet long center-to-center of support. The center-span girders are rigidly connected to the pier columns at both ends. The end-span girders are rigidly connected to the pier columns, but freely supported at the abutments on sliding plates of steel on bronze.

The girders, with the exception of the stirrups, are reinforced with bars throughout. Sidewalks are cantilevered from the girders at the two curbs. Curbs are 12 inches high. At some future time it may be desirable to surface the roadway with asphalt. For the present there will be no surfacing on the concrete deck slab.

Handrails consist of concrete posts spaced about 15 feet on centers, with steel-panel rails between posts. Handrails extend along the top of the retaining walls for varying distances, as required for pedestrian's safety.

The reinforced-concrete retaining wall is an inverted T section cantilever supported on wood piling. Part of the curved sidewalk at the north end is cantilevered from the top of the wall.

The bridge was built by the city with federal aid on the cost of plans and specifications. Francis J. Magnuson was City Engineer at the time the bridge was designed, and Ralph Monson was City Engineer during the construction of the bridge, and supervised its construction. L. M. Feller Company, of Rochester, was the contractor. Plans and specifications for the bridge were prepared by Walter H. Wheeler, consulting engineer, Minneapolis, Minn., and he gave general supervision during the construction.

Community Participation in the Festival of Britain

THROUGHOUT Britain today, in countless cities, towns and villages, ambitious plans are being made to celebrate the Festival of Britain centenary of the Great Exhibition of 1851. Each community will make the historic event in its own way—from village flower shows to scientific conventions—and all of the populace will participate.

The centerpiece of the 1951 Festival of Britain is the South Bank Exhibition on the site between the Waterloo and Westminster Bridges on the River Thames. The Exhibition will tell the story of Britain and her people—exploration and discovery, natural resources, power and production, science, sea and ships, transport, health and the home, and sport.

Another unusual feature will be a live architectural exhibition showing the complete reconstruction of a 30-acre area in London, known as the London County Council Neighborhood No. 9, at Poplar. The Royal Festival Hall will be the only permanent building in the South Bank exhibition area. But the schools, shops, housing, playgrounds, health center, and office buildings rebuilt for the live architectural exhibit will, of course, be permanent. The general planning and architectural coordination of the scheme and progress of the work have been carried out under the Town Planning Division of the London Council.

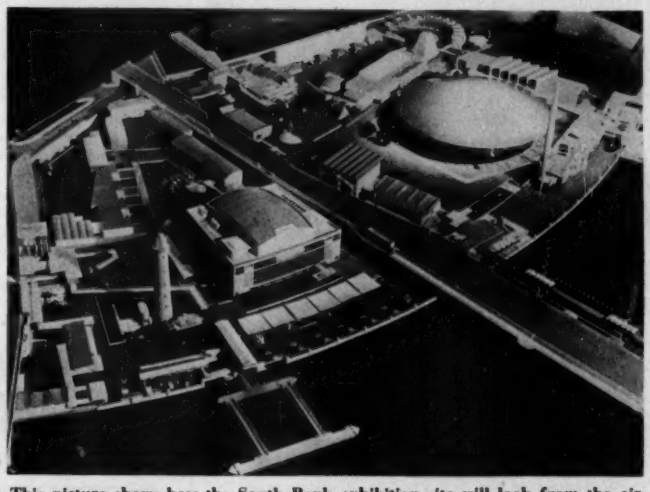
Municipal Officials Invited

The British Information Services, as represented by Mrs. Joy Wright, Deputy Director of Press and Radio, writes to THE AMERICAN CITY:

It is possible that some of your readers may be planning to visit Britain this summer for the Festival of Britain.

The Director of the Institute of Public Administration, at 76a New Cavendish Street, London, W. 1, has asked me to tell you that the Institute has members throughout the civil service, in local government, the public corporations, and the health services, and they should be very pleased to introduce Festival visitors to Institute members in those branches of the public services in which they are interested.

This is a model of the market square and shopping center for the new Lansbury neighborhood now being reconstructed at Poplar as part of the Live Architecture Exhibition for the Festival. The clock tower and covered market for meat and fish is in the foreground; collapsible market stalls and arcaded shops are beyond. Maisonettes with bow windows look over the square, with the rear terrace gardens placed over the shops. Frederick Gibberd is the architect.

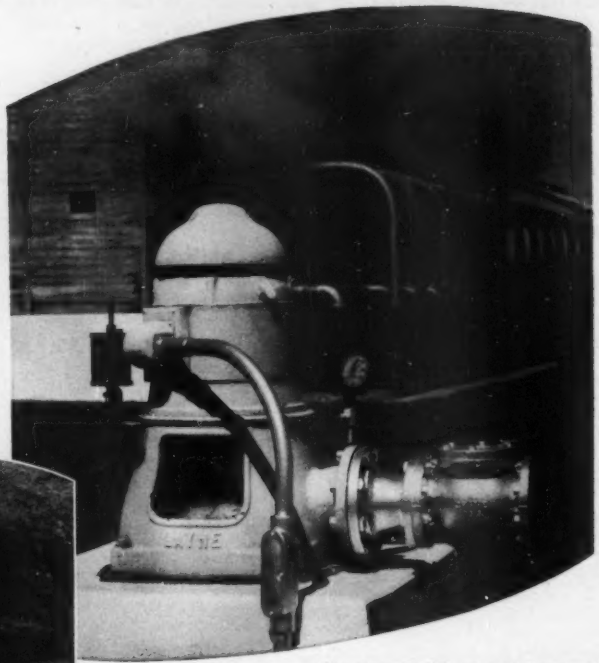


This picture shows how the South Bank exhibition site will look from the air when it is completed. The large circular building on the right is the Dome of Discovery, and the building which is the nearest to the Shot Tower on the left of the picture is the Royal Festival Hall, a permanent structure.

THEY ARE WORKING ON THE BIG PIPELINES

WHERE WATER FAILURE WOULD STOP EVERYTHING

A lot of new Layne wells and pumps are serving the big inch pipelines,—and more are being installed. The selection of these fine water supply systems was based on such features as;—basically sound engineering ideas, higher overall quality, top flight efficiency,—and their ability to handle peak production on an around the clock schedule. Installed by Layne's own field crews and according to Layne's rigid standards, they will give years and years of fine service with little or no upkeep expense.



• Near Greenville, Mississippi this Layne well and pump installation furnishes cooling water for a pumping station on a big inch pipeline.

• This Layne well and pump installation in Gregg County, Texas supplies water for general use on a big inch pipeline booster station.

LAYNE is the Nation's greatest organization engaged exclusively in the designing and building of modern high efficiency well water systems. Layne has made more installations than any other organization in the world and is recognized as being the best qualified of all firms now in the business of developing well water. Such qualifications enable Layne to do every job complete and right, whether for a single unit, a dozen—or hundreds. For further information, new catalogs, bulletins, etc., address

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Layne
WATER SUPPLY
WELLS & PUMPS

Municipal Public Relations

The City Tells Its Story

By HENRY DAVIS NADIG

Executive Director, Association of Municipal Public Relations Officers

TV Show by Mayor in St. Paul; MPR in Suburban Nassau County

MAYOR Edward K. Delaney, of St. Paul, Minn., is giving a series of 19 television programs on Tuesdays at 4:45 p.m., over WCTN-TV, in St. Paul.

It is called "The Mayor's Notebook," and the mayor interviews personalities of city government and members of active civic organizations. Past programs have included members of the Red Cross, City Planning Board, Housing and Redevelopment Authority, St. Paul Civic Opera, St. Paul Winter Carnival, City Council, and County Board.

Each program is sponsored by a St. Paul business firm, but there is no "commercial" other than a mention of the firm name and address at the end —"in community interest."

The 15-minute program is written and produced by Donald F. Sager, Director of the PR Department. Each show has advance publicity in newspapers, the *TV-Times* and over the TV station.

MPR on Long Island

William A. Kennedy, managing director of Kennedy Associates, public relations, Rockville Centre, N. Y., brings us up to date on MPR in a few suburban Nassau County municipalities.

Mr. Kennedy says that officials of municipalities for which he is carrying on MPR programs agree that these programs have paid dividends in better understanding of municipal problems by the public and greater cooperation between elected officials and the men and women who voted them into office.

Rockville Centre was the pioneer in the Nassau field, with Garden City, Lynbrook, and Malverne now also having the Kennedy firm handle their MPR. While each of the four villages has a public-relations program suited to its needs, they all have in common a major need for MPR. They are all residential villages with large commuting populations and a large proportion of home owners. Most of the heads of families are away from their home communities during the day, as they travel to business in the city. They are interested, however, in having their respective villages run efficiently. They are taxpayers.

With this divided interest, combined with newspaper reading habits of commuters, contact could be easily lost between local officials and taxpayers. They get little news of their home villages in the metropolitan press. And since they are in the habit of getting their news from New York City papers, they may not read the two Nassau dailies or their village weekly newspapers.

Newsletters

Consequently, Mr. Kennedy realized that one of the first problems was to find ways of keeping village residents well informed on matters of their own village governments. As a first step in meeting this problem, his office prepares periodic printed newsletters which are mailed to all residents of each village. The publications are kept strictly informative; no items of a political nature are allowed to creep into the pages. Newsletters tell briefly of public improvements planned and executed; of new equipment purchased for police, public works, and other village services; of village finances; of personnel changes, and of accomplishments of the various departments.

The newsletters discuss proposed new ordinances and regulations and announce public hearings, which precede all important decisions by the Boards of Trustees. They explain policies and invite suggestions. Items are concise for quick reading by the busy housewife or businessman. Rockville Centre and Lynbrook publish monthly newsletters; Malverne, bi-monthly; and Garden City, an average of six a year.

As a further means of keeping residents acquainted with activities and accomplishments of their local governments, printed and illustrated annual reports are prepared for Rockville Centre and Garden City. These 36-to-56-page publications are mailed to all householders.

Other printed matter for public distribution, such announcements as concern the opening of new municipal parking fields and the use of newly installed parking meters, are prepared when the occasion demands, particularly for Rockville Centre. For this village, contact is kept with the press and radio, and releases are prepared and distributed on all important plans and activities of the local government. Statements and letters are written for the mayor and public officials on request.

The villages may also call upon their MPR consultant for general public-relations advice and for counsel on specific problems.

Participation of all residents in village affairs is encouraged by urging public attendance at meetings of the village board, where individuals may offer criticism and suggestions. Close contact is kept with neighborhood civic associations, and their representatives are often appointed to citizen committees to study specific problems and advise the local Board of Trustees.

During the past year, for example, the Rockville Centre and Lynbrook boards named citizens' parking-meter committees. After surveys, these committees recommended installation of the meters to speed the turnover of curb parking-space. Following general public discussions and hearings, both villages adopted the proposals. In addition Rockville Centre has several permanent citizens' committees, including a traffic light, a transportation, a veterans', and a youth committee.

Mr. Kennedy points out that these policies of giving full information to the taxpayers and encouraging the citizenry to take a hand in the government of their villages, have in each instance brought about not only improved relations between the public and their elected officials, but more responsive and businesslike local government.

MPR Questionnaire Responses Coming Fast

BOTH AMPRO and THE AMERICAN CITY are enthusiastic over the excellent response received during the first week following distribution of an MPR questionnaire to some 1,500 Mayors and City Managers throughout the country.

The second questionnaire to be sent out on MPR (the first was in December 1947), it already indicates an increasing official awareness of the importance of MPR.

We urge all those who have not yet filled out their questionnaires and returned them, to forward them as soon as possible. We should like to report on the survey in our June issue, if possible.

HOW INFILCO EQUIPMENT HELPED CLEAR LAKE, IOWA MEET ITS WATER PROBLEM

ENGINEERS: STANLEY ENGINEERING COMPANY, MUSCATINE, IOWA

Varying Raw Water Characteristics And Summer Population Increases were plaguing the City of Clear Lake, Iowa. Located on one of Iowa's outstanding blue-water lakes, the city's permanent population of 4,000 increased each summer to about 10,000. This taxed the water plant's capacity until it was operating on a direct pumping basis. Unpleasant, heavy tastes and odors of algae origin were noted during the summer. Then, occasional high winds would raise the normal turbidity of the lake from 25 ppm to 500 ppm or more.

A 1 mgd ACCELATOR® and other Infilco equipment such as dry chemical feeders, aerators, filters, and control devices solved Clear Lake's water problems. The new plant is sufficiently flexible to meet peak demands with reserve capacity. It gives Clear Lake residents *crystal clear* water that is free of odor or taste every day of every season.

Clear Lake is but one of hundreds of cities being served efficiently and economically by INFILCO Water Conditioning Equipment. Investigate how Infilco can serve you, too—whether it be modernization of an existing plant or the equipment for a new one. Write our executive offices in Tucson or call in the nearest Infilco Field Engineer. There's no obligation, of course.

SERVING MUNICIPALITIES WITH WATER CONDITIONING EQUIPMENT THAT'S

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WITH OFFICES IN PRINCIPAL CITIES

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• BETTER WATER CONDITIONING AND WASTE TREATMENT SINCE 1894 •

WORLD'S LEADING MANUFACTURERS OF WATER CONDITIONING AND WASTE TREATING EQUIPMENT

The Elements of Refuse Collection and Disposal

Part III

Incineration, controlled landfill, hog feeding, and the open dump appraised, the landfill method examined in detail

By WILLIAM S. FOSTER
Engineering Editor
The American City

AFTER collecting the refuse, the next question is what to do with it. In general, we have three possibilities. Two of them are good. One is poor. The first, most positive, and at the same time most expensive, is incineration. The second is the sanitary landfill. The third, and a poor third at that, is the open dump. Let us first take the third and poorest—simply to get it out of the way.

J. C. Dawes of the London Ministry of Health coldly—and correctly—dismisses the open dump as "the negation of a method."[1] It ignores the fact that a community structure is dedicated to the protection of the health and welfare of its people. When some phase of its governmental work produces a breeding place for flies and rats; when it generates casually controlled fires, foul odors, and produces an objectionable eyesore, then that work fails in its dedicated purpose.

Nevertheless, we find a substantial number of our nation's communities using the open dump. In Maryland, for example, the State Health Department discovered 44 out of 88 communities surveyed using them.[2]

Let us also dispose of that second questionable method—hog feeding. Hog feeding is attractive because it is profitable, and because it performs that admirable feat of taking what normally would be classed as waste products and transforming them into useful purposes.

Hog feeding disposes only of the garbage portion of the refuse. It is approved by health authorities if—and this is a very big "if"—the garbage is properly sterilized by boiling or by some similar method. When garbage is fed raw to hogs, it apparently infects the hogs with trichinosis, and this can be passed along to humans if the pork is not thoroughly cooked. The United States Chamber of Commerce, Health Advisory Council, states that in Canada, where garbage is cooked before feeding it to hogs, trichinosis is one-twelfth as widespread as it is in the United States.[3]

The United States Public Health Service estimates in its Report No. 15, Vol. 63, that 5.7% of all garbage-fed hogs are infected with trichinosis. The Service further estimates that 10% to 20% of the adult population have contracted trichinosis infection at one time or another. At one time, certain foreign countries restricted the importation of pork from the United States because of this infection.[4]

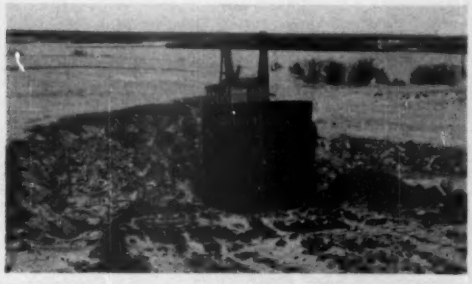
To avoid this difficulty, the Public Health Service recommends that the garbage be boiled for 30 minutes or more. Tests show that boiling for 30 minutes in open containers will destroy the trichina larvae in pork 3 inches thick and probably thicker, if allowed to cool gradually. When the internal temperature of the pork is 132.8° F., no larvae survive. When the garbage is boiled 30 minutes and cooled 60 minutes, all are killed except for those in a sample measuring 6 by 5 by 4 inches.

Legislative Control

The United States Public Health Service reports that the states of Kentucky, Oregon, and New York have legislation requiring garbage-cooking facilities; however, the rules are enforced only in Oregon, and there only partially. Ralph J. Van Derwerker of the United States Public Health Service reports a survey of garbage-cooking installations in Oregon which revealed that those hog feeders who cook the garbage find the cost compensated for by reduction of hog diseases, salvage of grease, and an increase in the amount of garbage that is edible.

Hog feeding is a thrifty and resourceful method of garbage disposal; but only when the garbage is cooked the equivalent of 30 minutes and allowed to cool. The feeding of raw garbage is unsanitary and should not be a part of a refuse-sanitation program.

Nevertheless, despite the fact, well known to our nation's health authorities, we still find raw garbage being fed to hogs generally throughout the country. In Maryland, for example, the State Health Department found 17 out



Cold-weather operation is perfectly feasible, according to recent tests. Such an operation took place in Mandan, N. D, where a Caterpillar D-4 tractor with a Trackson

Traxcavator did the work. Above: This sanitary-landfill work is done at Bradford, England. Note the cleanliness of the operation and the precision of the grading.

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Installation Cost Savings—These Hy-Lite standards are furnished with their own pre-cast butt foundation, spun as an integral part of the standard. This means you save the cost of anchor rods and cast-in-field foundations. And—they're arranged for overhead wiring—for additional savings.

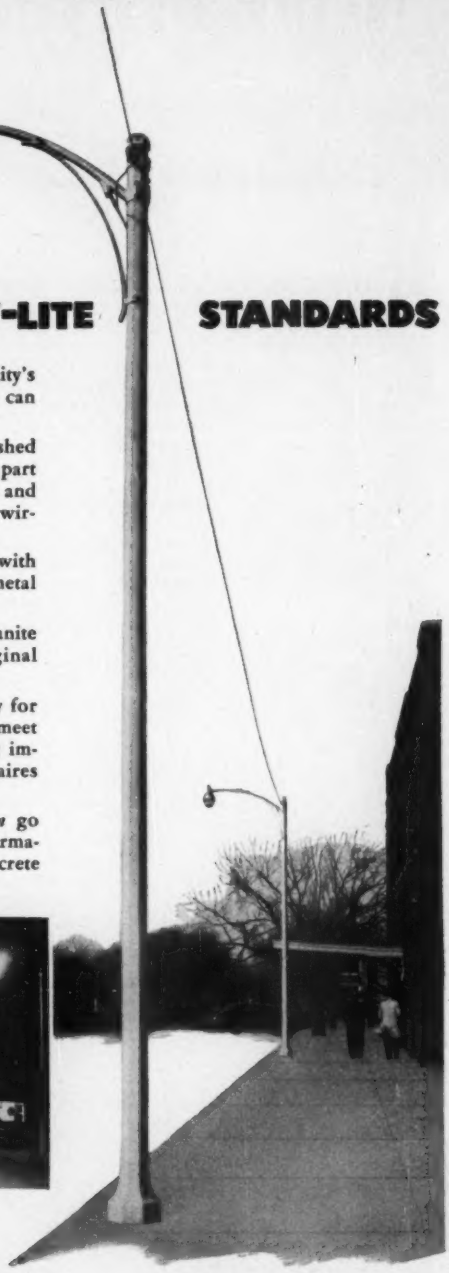
Critical Metal Savings—Because Hy-Lite standards are made with durable, reinforced concrete, they require only *one-third* the metal otherwise needed.

Maintenance Savings—Hy-Lite standards' water-polished granite finish practically eliminates upkeep. They retain their original attractive appearance through years of service.

Gains in Safety!—Modern safety lighting increases safety for pedestrians and traffic. And Hy-Lite standards are designed to meet the most modern street lighting requirements . . . the latest improved practices. Either mercury vapor or incandescent luminaires may be used.

See how your street lighting improvement program *can* go ahead, with Hy-Lite standards to help you. For additional information and dimensional data, please write to American Concrete Corporation, 4727 North Lamon Avenue, Chicago, Ill.

In Arkansas City: one of Kansas Gas & Electric Company's modern Hy-Lite installations, with 100 ft. spacing, 25 ft. mounting height and 10,000 lumen lamps.



American Concrete

CENTRIFUGALLY SPUN-GRANITE CONCRETE LIGHTING STANDARDS

Hog feeding, with attendant trichinosis infection, receives no approval from health authorities unless the garbage has been sterilized by proper cooking methods.

To reclaim blighted ground, small fills, operated carefully, can be located near residential areas. A Drott Bullclam on an Allis-Chalmers tractor is working here.

of 88 communities using this practice.[2]

Incineration, in contrast, does meet exacting health standards if it is performed with any degree of thoroughness. However, it must be recognized for what it is. Strictly speaking, it is not a method of disposal. It is a method of processing the refuse so that its volume is reduced between 90 and 95%, and it becomes a final residue that does not cause a health or nuisance problem. An end residue must still be disposed of, probably in an open dumping area. But since the putrefiable portion has been destroyed, the remaining ash will be sterile and inert, and the ground filled by the residue will be solid and suitable for future building.

Where economic reasons prevent the use of the incinerator, the sanitary landfill has proved to be a satisfactory alternate. This method, developed originally in England about the time of World War I, has seen healthy growth in this country. The method consists essentially of digging a trench and burying the refuse in it. The sanitary-engineering profession adopted a term with surprisingly good public-relations value when they classed it the "sanitary fill." The English call it "controlled tipping."

British experience with the sanitary fill is reported to be most encouraging.[5] Their standards appear to be to limit the fill to about 6 feet and seal the filled material carefully. If it is limited to this depth, they find that thermogenic bacteria break the material down so that the fill is stabilized in a matter of two years.

Advantages and Difficulties of This Method

The method has many advantages. It requires much less equipment, and thereby has a lowered capitalized cost. It can meet practically any load requirement and dispose of virtually any type of municipal waste. There is no need of segregating the burnables from the unburnables in the sanitary fill.

However, the method uses a great deal of land. It hides the refuse rather than destroying all but a small residue as do the incinerators. And the land so filled with refuse generally has limited use, since the decomposition in the fill with its attendant generation of methane gases and land settlement makes construction difficult and dangerous for an extended period. The work proceeds better if the cover material is somewhat coarse, with sand and gravel in it. This allows the gases of decomposition to escape more easily, lets vehicles operate on the fills without trouble, and prevents shrinkage cracks from forming.

Two Methods

There are two methods generally used in this country to build the fills. The first is the "trench method." The second is the "area method."

In the trench method, the operators dig out a trench anywhere from 6 to 15 feet wide and about 3 feet deep. The refuse should then be placed from 4 to 6 feet deep and covered with 18 inches of dirt. The dirt is obtained when the operators dig the next day's trench.

As can be seen, the trench method is best fitted to flat-ground areas. Often the most accessible land is irregular wasteland. In these cases, one should use the area method. This means that the refuse is simply packed in place with a tractor or bulldozer and then covered over with dirt. The refuse should again be placed in layers of 4 to 6 feet and should, by all means, be covered as it accumulates each day.

Columbus, Ga., has a sanitary landfill that has received general commendation for its excellence.[6] In 1946, city officials estimated that the cost of operating it was 40 cents per ton. The practice was to make trenches 8 feet wide and 3 feet deep. The refuse is 4 feet thick and has an 18-inch-thick cover. Trenches are 4 feet apart. The trenches were dug with a Drott Bullclam shovel attached to a crawler-type tractor. The work was under the direction of J. A. Willman, Public Health Director, now City Manager.

The sanitary landfill, or fill-and-cover method, is enjoying a growing use in this country. Evidence of this may be seen by the figures furnished by the Drott Manufacturing Company, of Milwaukee, a manufacturer who makes equipment especially fitted to this work.[7] This company, in 1949, recorded 122 cities in 34 states and one territory outside the United States, plus two Canadian cities using the Bullclam. Richmond, Va. (population 229,000), has six machines. The smallest city using such a machine is Rockville, Md. (population 2,000). The company has 158 units in use. In addition, there are many other cities, such as New York, Baltimore, and New Orleans, that use draglines and tractors with bulldozers which would probably run the total up to about 150.

The United States Public Health Service has listed these advantages and disadvantages for the sanitary landfill[8]:

Advantages and Disadvantages

Advantages—

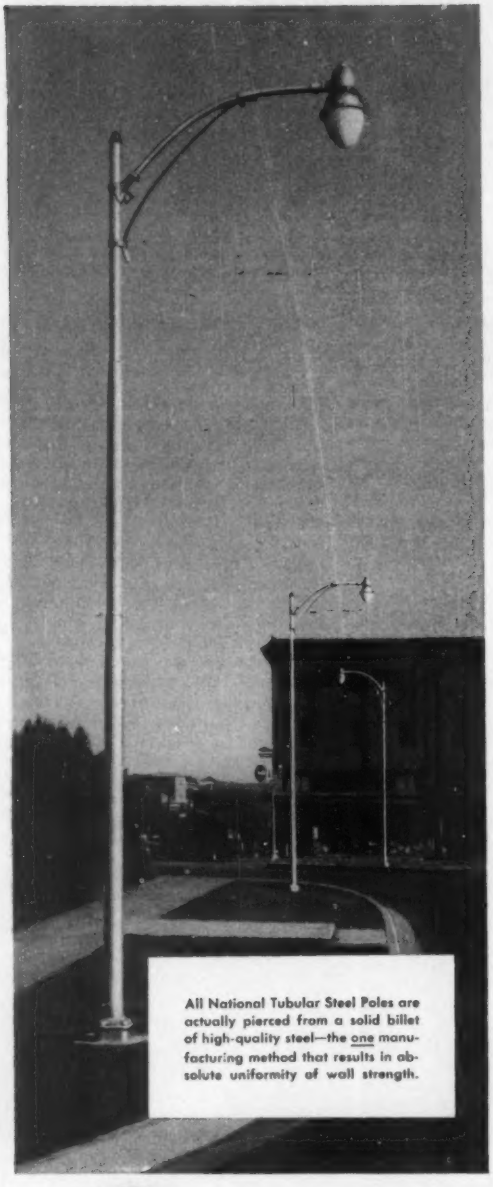
- Allows combined collections.
- Allows the use of several disposal sites simultaneously.
- Can use equipment that is not expensive.
- Variations in the amount of waste collected are not a factor.
- The completed fill area is trim and attractive.

Disadvantages—

- Rats may be attracted if the fill is not good.
- Bugs may be attracted to near-by buildings.
- Seepage has a high oxygen demand and may pollute streams.
- The bearing value of the fill is low.
- Methane and other gases may be generated, making basements in any buildings in the area dangerous.

In a study reported at the American Public Works Association Congress in

Your streets will look better with these


All National Tubular Steel Poles are actually pierced from a solid billet of high-quality steel—the one manufacturing method that results in absolute uniformity of wall strength.

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FEW things can do more to improve the appearance of your streets than National Tubular Steel Poles. Particularly when they replace unsightly old-fashioned wood standards.

But steel poles are more than good-looking. They're economical because they're so very strong . . . they can be spaced farther apart, so you don't have to use so many poles. They resist damage to a remarkable degree, and they don't need any maintenance except an occasional paint job.

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WALLS WITHOUT WELDS

USS

NATIONAL *Tubular* STEEL POLES

UNITED STATES STEEL

1947, at Jacksonville, Fla., these operating figures were recorded:[9]

1. The fills require six men per 1,000 cubic yards per day unless unfavorable operating conditions are encountered. Good conditions drop the figure to 3.3.
2. The fills require 7 acre-feet per 10,000 people. Dallas records a high of 16.9. Baltimore a low of 2.1. Fort Worth records 8,000 to 10,000 cubic feet per acre.
3. The fills will settle 25% to 40%. In fills 18 to 25 years old, 8½% to 13½% is volatile matter. On a dry-solids basis this is 14½% to 28¼%.

In thick fills, the material decomposes slowly. San Francisco has for several years been building a sanitary landfill using a fill depth of about 20 feet. H. C. Vensanto, Director of Public Works, reported that the material in the fill showed relatively no decomposition after 12 years of use.[10] Fruits and vegetables—corn, carrots and lemon and grapefruit rind—were in recognizable condition.

Fort Worth, Texas, uses the area method of building its refuse fills.[11] City forces do the work with tractors equipped with 3-yard Bullclams. In 1950, the cost of disposal at Fort Worth averaged 39 cents per ton, based on refuse weighing 350 pounds per cubic yard. One Bullclam is reported to be able to handle 1,000 to 1,200 cubic yards of loose refuse per day. The Fort Worth Department of Public Works estimates that it can dispose of approximately 60,000 cubic yards of refuse per acre of land by the ramp method using old gravel-pit areas.

In addition to the operation of four sanitary-fill areas, Fort Worth also operates two old incinerators and is contemplating the construction of a modern crane-and-bin-type incinerator to be used in conjunction with the sanitary fills.

In deep fills, decomposition often takes place very slowly. The material shown here was buried for 10 years.

Reclaims Farmland

Danville, Va., expects its sanitary landfill to result in reclaiming wasted farmland.[12] O. T. Cooke, Superintendent of Garbage Collection, is using 72 acres of badly eroded land a quarter of a mile from the city, and deposits approximately 100 tons of refuse per day. He estimates that the area will last for 20 years. His crews use a Caterpillar diesel D-8 tractor with a bulldozer blade, and cover each day's accumulation of refuse with 18 inches of earth.

Proof that the landfill can be operated successfully inside the city limits comes from Wyandotte, Mich.[13] This city successfully used the sanitary fill to raise low land in the city in a residential area to make playgrounds. The lots were 18 inches below grade. The crews took off the top soil, stock-piled it, and then made a trench 16 feet wide and 5 feet deep. Each day's deposit was covered and the area was covered again after the work was completed by a layer 12 to 24 inches deep. Near-by residents registered some complaints before the work was started, but none after the work was under-way. The work was under the direction of Louis H. Moehr, City Engineer.

Indications that the landfill can be used in cold climates comes from Mason City, Iowa, population 27,000.[14] This city adopted the practical solution of simply digging out a sufficiently long trench to provide capacity through the winter months and then not covering the refuse when the ground was frozen. Instead, the operator merely packs the refuse with a tractor and then covers it when the weather moderates. One trench 250 feet long will last 60 days. The trenches are 5 feet deep, 10 feet wide, and are filled to a thickness of 7 feet. The work is under the direction of Clifford Hamblin, City Engineer.

Another sanitary landfill that has received a good deal of creditable attention and that operates throughout the winter months is the one at Mandan, N. D.[15] This fill was operated during the winter of 1949-50 as an experiment cooperatively by the city, the North Dakota State Department of Health, and the United States Public Health Service. Temperatures dropped as low as 25° F. in December, 44° F. in January, and 25° F. in February. But despite this, dirt stock-piled in the fall never froze so solidly that the tractor could not handle it. The work was performed with a Caterpillar tractor and a Traxcavator loader.

Probably the toughest sanitary fill assignment in this country that is operating in a creditable manner is the one located at New Orleans, La.[16] This city, built on a marsh, selected a particularly marshy and boggy area to build its fills. The method selected was to build cells 100 feet by 100 feet, formed of natural clay walls, and bring in coarse material for cover. New Orleans has observed a compaction of about 50%, and has noted that trucks do a better job of compacting the refuse than do the tractors. Tractors are used to push the refuse only, and the trucks back over the refuse to pack it.

The open dump—a municipal abscess, ugly nuisance; a potential health hazard.

References apply to articles that have appeared in THE AMERICAN CITY, and are listed on page 13 of this issue.

The Best Aid to Corrosion Protection is

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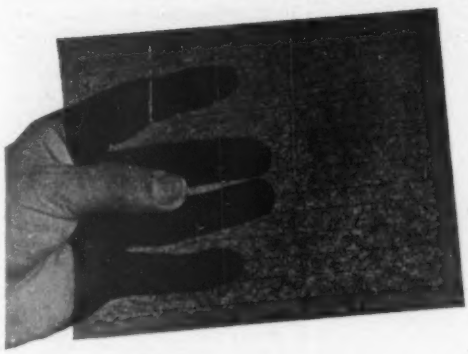

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FINER fibers of glass (a Fiberglas specialty), and *MORE OF THEM*—all distributed according to Fiberglas process —provide *CONTROLLED POROSITY* . . . and that means *even bleed-through* and *even enamel thickness,* for best corrosion protection.

Fiberglas Coromat is the product of the longest experience and best research in glass corrosion protection; Coromat is the *Product of Experience* for your pipelines and distribution lines.

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* *Coromat is a trade-mark of Owens-Corning Fiberglas Corporation*

FIBERGLAS . . . ON YOUR PIPE . . . FOR GOOD!

How San Francisco Chaperones Its Parking Meters

By DONALD TOWNSEND
Superintendent of Plant
Department of Electricity
City and County of San Francisco

OTHER city maintenance departments may complain about their parking meters being like urchins on the city streets—unmanageable and pretty much on their own once they've been installed.

We, in the electrical-maintenance department of the City and County of San Francisco, keep tab on parking meters with something akin to paternal vigilance. We know, for instance, exactly how many times—and when—each meter was repaired, replaced, and exactly what trouble occurred. We're putting a day-to-day check system into effect which will, with the addition of a few more maintenance men, allow us to check each meter *every* day. Added to this, we've got a unique initial-number system which tells us immediately not only the number of the meter and its zone location, but its specific location in relation to main intersections.

Meter Biography

In short, we've got a biography of each of our meters. And we accomplish this by a simple Kardex filing system. This system has been developed during the three years in which parking-meter installations have expanded from our original 550 meters in September 1947 to the largest municipal installation in the United States—9,500 Magee-Hale Park-O-Meters. We'll reach a maximum of approximately 13,000 meters in the next several years. In San Francisco, there are at present 23 meter zones. These extend along main streets from the downtown business district—and in some cases into near-by residential sections. Other zones are located in the smaller shopping districts.

The electrical maintenance department keeps 11 meter repairmen busy checking these meters. We feel that for top efficiency—and to get the most from meter installations—meters should be checked daily. Experience has shown us that a repairman can check and repair about 800 meters daily, figuring a 2½% repair ratio. That is, of the 800 meters assigned to each repairman, about 20 will need major or minor repairs. Our maintenance men do no collecting. That job is handled by the city tax office. Maintenance men unjam meters, adjust meter mechanisms, replace glass and posts, and exchange parts and mechanisms.

Each morning the tax-office collection crews report any meters which are out of order. These complaints are made up into Parking Meter Daily Complaints—which each meter maintenance man carries with him. He makes repairs and notes them with date, zone, and meter number on his Parking Meter Daily Report.

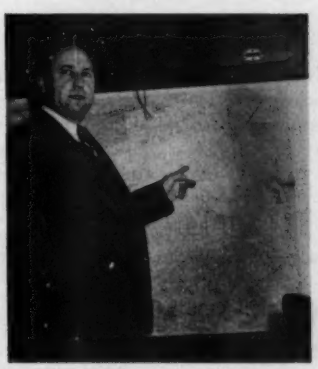
All meter troubles are coded. Take, for example, an intentional jam. That's designated on the Daily Report by "J." Exchange of a timer mechanism is shown by the initial-code "ET." An unwound mainspring is initialed "US." Coding makes the filing notation easy, reduces clerical errors due to poor handwriting, and saves time.

Each night our maintenance men turn in their Daily Report sheets. Information on these sheets is transferred to specially printed Kardex cards in our files—for this is the information which becomes a meter biography.

Each Kardex form has the permanent number and coded street location of five meters on it. Under each of these meter listings is room for 36 repair notes.

Our maintenance clerk takes the Daily Reports and for each meter repaired writes in on the Kardex form the date, the code of the maintenance performed, and in rare cases a special notation.

Our Kardex (Remington Rand) file gives us the following information all on one card and all within easy reach of our maintenance clerk: (1) repetition of fault—mechanical; (2) repetition of fault—malicious damage; (3) exact fault; (4) zones of greatest maintenance, etc.



The author with map of San Francisco

Parts of the "factory-built" records system which helps keep the city's 9,500 parking meters repaired. Top: visible complaint record and daily maintenance field report. Below: the cards being posted from daily reports.

Many cities simply repair broken or jammed meters and let it go at that. However, we've found that a more detailed record is needed. Suppose that in a certain zone we find that frequently a certain section of meters is being deliberately jammed. If this happens often, we'll request a police officer to watch the meter section. Without files, we'd have only a hazy notion of which meters were being mistreated.

Likewise, the police department seems pretty happy about our filing system for parking meters. Suppose it gives an over-time parking ticket and the recipient swears that the meter wasn't working. It requires only a moment to check our files. If the meter wasn't working that day and had to be repaired, our records will show it. It works the other way around, too.

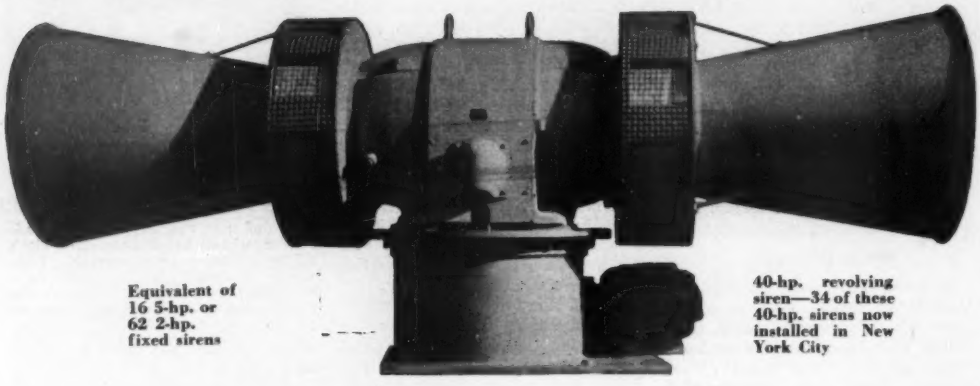
We keep separate files for such maintenance jobs as post-painting and setting up and taking down posts and meters. This shows how long a meter was out of service. Our large file on maintenance merely tells us what meter-repair job was done and when. Our meter-post file tells us the condition of each post, and when it was repaired and painted.

When we first installed meters, we merely numbered them consecutively by

CIVIL DEFENSE councils and municipalities

are not fumbling this time. They know that successful air-raid warning means the most effective sirens located to eliminate dead spots. The latest successful test of the H. O. R. 40-hp. electric siren was made in Pittsburgh, Pa., on April 7 before the Allegheny County Office of Civil Defense whose report of the test quoted The Pittsburgh Sun-Telegraph's telling line—"Civil Defense authorities unleashed the

GRANDDADDY *of all warning sirens"*



Equivalent of 16 5-hp. or 62 2-hp. fixed sirens

40-hp. revolving siren—34 of these 40-hp. sirens now installed in New York City

Pittsburgh, according to the Allegheny County Civil Defense Office, was much interested because of its industries, plants, heavy traffic and rugged topography, all of which introduce sound interference. In spite of these challenging conditions, the deep-throated tone of "Granddaddy" was heard at distances up to 4 miles. *This air-raid warning test that observers pronounced highly successful,* (from The Pittsburgh Sun-Telegraph April 8 statement quoted in the Report), was a guide to indicate where sirens need to be located so that there will be no dead spots in the Steel City.

With carefully timed revolution Super-Sirex spreads a commanding umbrella of sound over all points of the compass. Designed and manufactured exclusively by H. O. R. Co., Inc., Super-Sirex is guaranteed for three years by the manufacturer.

Write for full particulars of this test

H. O. R. CO., INC.

40 BROADWAY
STATEN ISLAND 10, N. Y.

Meters are assigned numbers with this special rule laid along map of street. The Kardex record is in front, and the daily maintenance report at top left.

zones. Recently, we have worked out a system which uses a prefix corresponding to a street name, followed by the meter number, which, while not identical with street numbers, follows them closely. For instance, meter number 345 on Geary Street is tagged with this code: GEA 345. Likewise, a meter on 24th Street is prefixed 24S. Another on 22nd Avenue is prefixed 22A.

In numbering meters, we have a scale-plan drawn up of the zone, showing each metered street. A special rule is used to lay out numbers. On one side of the rule, in the same scale as the drawing, are odd numbers; on the other, even. The rule is laid at the property line designated on the street drawing, and meter locations marked off. Meters are set at an average of 21 feet apart. Suppose that we are putting new meters on the 2900 block on Geary Street. We set the rule at the property line on our drawing and start marking off meter locations—and numbering them as our ruler indicates. The rule is marked off from 1 to 100 (just as the blocks are numbered). Thus, we may install a meter at GEA 2902. Attempting to number meters to correspond with street addresses just doesn't work. Too many buildings have several numbers or don't correspond with the spacing of a meter zone.

Back at maintenance headquarters, our clerk gets a complaint on meter GEA 2902. Immediately he knows approximately where the meter is: On Geary Street, in the 2900 block, the first meter on the right-hand side. Now the clerk turns to the Kardex section for Zone 3, quickly locating the card for meter GEA 2902. He notes under the meter heading that on August 2, 10, 16, 18, and September 1, meter GEA 2902 was reported maliciously jammed. Here, in front of him, is yet another report

Maintenance man notes each repair on a daily sheet giving all information. The compiled daily reports furnish a "biography" of all the city's meters.

marked "J"—the code for intentional jam. There are too many jams for this meter, and our clerk will likely write a note to the police department requesting them to keep an eye on the block—especially the section of meters involving the jams.

That's how meter-maintenance records are kept by the City and County of San Francisco. As you can see, we pamper our meters, but it pays off in better operations and more revenue.

What Kind of Firemen Are We?

By WILLIAM A. CLOUGH*

THERE is unquestionably something about fires and fire fighting that stirs the emotions, but there is something about firemen at work that stirs the soul.

If you have watched them at a fire you must have noticed how efficiently and calmly they work and with what steady directness they pour on the water. They never ignore the most insignificant blaze, and they never hesitate to tackle the most serious fire.

A neighbor of mine was burning leaves blew into dry grass nearby and fall. He had a good-sized pile blazing when he was called to the telephone. While he was gone, some of the burning leaves blew into dry grass near by and started a fire that spread rapidly before it was discovered.

Some of us rushed out with brooms and began beating the flames, but they gained such headway that someone called the fire department. Very soon a couple of trucks came clanging up. Hose was quickly unrolled, attached to a near-by hydrant, and in a short time every spark of fire was put out. The firemen soaked the area thoroughly. Then they wound up the hose and with a cheerful wave went clanging away.

If we did our job as thoroughly as the uniformed firemen do theirs, we would have a very beautiful world to live in.

For every difficulty, every so-called evil in the world, every false thought starting up in our minds is a sort of fire. Every dispute and every desire to pay someone back for mistreatment is a fire. Every physical and mental disturbance that carries the element of destruction and danger is a fire.

You and I are the firemen. What kind of firemen are we?

Did you have an argument this morning with someone in the family or at the store or the shop or the office? Did you speak in irritation to one of the children and grow angrier when hot words were flung back at you? Have you been worrying about some physical or financial condition or about the errors of some loved one? Those are all fires, smoldering, blazing, and destroying. You can put them out. If you do not, they will spread.

The little dispute over the breakfast table may be only a minor grass fire, but it had better be put out right away. Little fires grow into big ones. The resentment smoldering in a hidden place had better be quenched before it breaks out in a blaze of angry words. The creeping-worry fires had better be checked or they will burn all the happiness out of life.

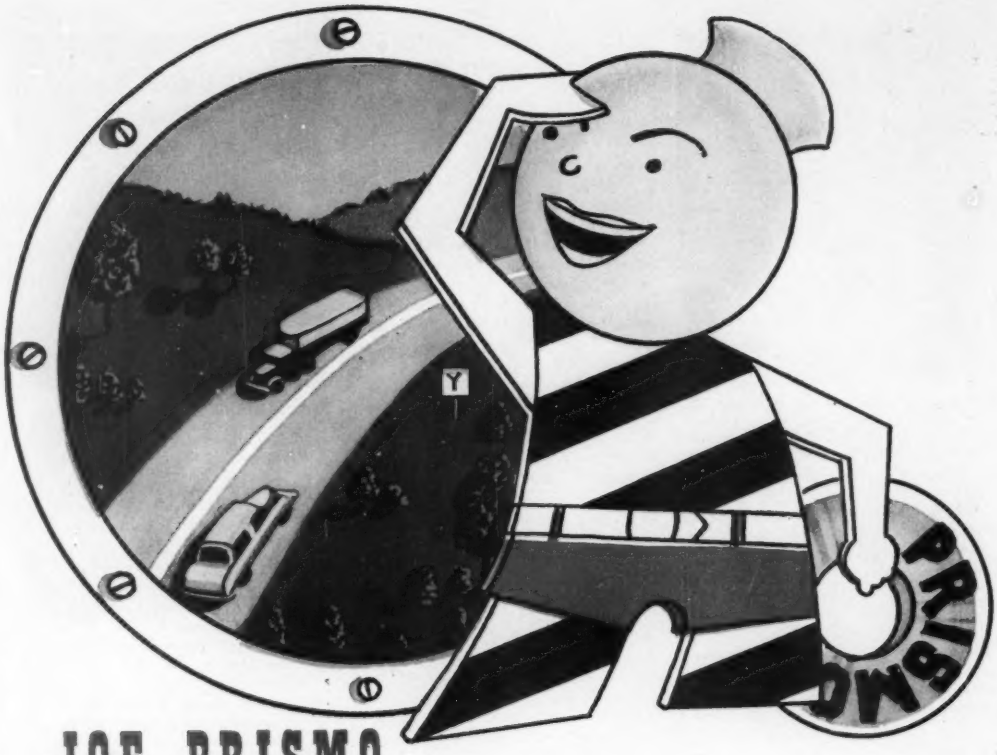
Ourselves as Firemen

Perhaps we could keep destructive thought and words from damaging our life and the lives of others if we look upon them as fires and upon ourselves as firemen.

You may feel that the fire within you has been started by someone else through unkind words. It may seem that someone is throwing fresh fuel on it continually. Never mind that. Just turn the force of your loving thoughts on the problem and keep pouring. As surely as day follows night, you will put out the fire and transform the other person.

There is no other way to quench the fires of distrust and fear. If you and I learn to be good firemen in handling our little fires, there can never be any big fires.

* From his article in *Weekly Unity* for April 8, 1951, published by the Unity School of Christianity, Lee's Summit, Mo.



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The SPHERE of SAFETY

Civil Defense and the Transit Industry

By E. B. MYOTT
Superintendent of Engineering & Maintenance
and
Civil Defense Director
Metropolitan Transit Authority
Boston, Mass.

GENERAL VANDENBERG, Chief of Staff of the United States Air Force, has stated that it is impossible to develop an impregnable defense against bombing attacks by a strong enemy, and that another major power has 450 planes that can strike our centers. He states that should war come, we can be expected to destroy no more than 30% of the planes making an attack in strength. Think for a moment about the damage which would be done by the remaining 70% of the bombers.

Face Realities

We must face realities and prepare defenses accordingly. It is my opinion that there is too much apathy on the part of leaders and influential citizens in this country regarding civil defense. Civil defense must keep in step with the strengthening of our military forces.

Virtually total mobilization of the country is now under way and is proceeding at an accelerated rate. The Navy is strong, the Air Force is rapidly developing, the Army is building from scratch. But, except in notable instances, the organization of the civilian population for defense is progressing at a snail's pace; it must be accelerated.

Governor Paul A. Dever of Massachusetts and his Civil Defense Director, John F. Stokes, have organized Massachusetts for civil defense without waiting for guidance from Washington. The basic organization for the state has been established and many municipalities have done likewise.

The Metropolitan Transit Authority, being a political subdivision of the Commonwealth of Massachusetts, has organized a Civil Defense Agency under the direction of the State Director.

In case of disaster, the Authority will make available all personnel, material, equipment, and facilities for rescue, transportation, and evacuation work not only in the area served by the Authority, but in any area as may be ordered by the State Director.

Studies are being made to determine the amount of first-aid and other training work which should be undertaken as well as steps which should be taken to provide sufficient internal security against espionage, sabotage, and subversive efforts. A committee is working on fire protection. Additional radio equipment has been ordered and applications have been made for the use of additional transmitting equipment in order that the system may function if telephone communications are lost.

Engineering studies are being made of additional facilities required in subways and tunnels if electric current is not available and they are used as shelters. These facilities include emergency lighting, the installation of additional pumping equipment using diesel or gasoline engines, and public-address systems in all subway stations.

Construction Forces

Construction forces have been organized in groups, including engineers, carpenters, ironworkers, shoring gangs, labor crews, equipment-operating and maintenance men, electricians, trackmen, and administrative forces. Assembly areas in the outlying sections have been designated where these construction forces will assemble at the earliest moment after an attack to await detailed assignments. Emergency tools and small equipment, together with vehicles for moving men and equipment, will be maintained at these locations, insofar as it is practicable. It is proposed to disperse to the fullest possible extent all heavy construction equipment. Our 87 snow fighters, each capable of carrying 20 men, can be used for transporting construction crews.

An attempt has been made also to assess the transit damage which would occur if atomic bombs were dropped at two different locations. The detonation of one bomb in Boston could destroy a large part of the elevated structures and inclines to subways; facilities on the Cambridge-Dorchester Rapid Transit Line at the Longfellow Bridge across the Charles River Basin would be seriously damaged, and the East Cambridge Viaduct and the combined highway and elevated bridge across the Charles River undoubtedly would be destroyed to such an extent that many months would be required to restore them for service. Many subway entrances and exits at the Rapid Transit Stations would be damaged or completely covered with debris from falling buildings. A power station on Atlantic Avenue would be out of operation for a long time.

If two bombs were dropped at different locations, the damage would be much greater, and there is a possibility that both power stations operated by the Authority would be rendered useless, and that the Edison Company's power station with which the Authority has emergency connections through interchanging equipment would become inoperative. This would mean that the entire transit system of Boston would be without electric power. The motor buses could move only about 10% of normal traffic. It is the assignment of the transit company to move civil-defense teams and equipment, police units, medical and health teams, rescued persons, seriously injured persons, hospital patients, evacuees, and engineering, utility, and labor crews.

In addition to the damage to the transit facilities, a large part of the city would be demolished. The loss of life would be extremely great and there would be many injured. A large part of the city would be uninhabitable.

Serious Transportation Problem

The damage has been briefly described to point out that a very serious transportation problem will exist. Transportation vehicles for evacuation work, and for assuring the continuous operation of industrial plants and other facilities, would be needed for many other cities. For one of the principal functions of civil defense is expeditiously to restore production of war materials following an attack.

Ambulance capacity in any city is inadequate for meeting the requirements of disaster relief. Buses can be used for this purpose. New York City is equipping new buses with hangers for the use of stretchers. Other methods of supporting stretchers can be improvised, such as rubber cushions that rest

6 New Trolley Coach Lines for Boston

Metropolitan Boston likes trolley coaches. And because it does, the Metropolitan Transit Authority's fleet has grown steadily since the first installation in 1936. This year, for example, six new trolley coach routes will be established.

Popular acclaim by riders has played an important part in each MTA decision to extend trolley coach service. This popularity, as well as management's appreciation of the trolley coach's reliability and relatively low operating cost, accounts for the growth of MTA's trolley coach fleet.

In medium-sized as well as large cities, forward-looking transit operators are using this modern electric vehicle more and more. Presently, trolley coaches are operating in 67 cities throughout the country, with populations ranging from 80,000 to upwards of 2,000,000 people. General Electric Company, Schenectady, New York.

OPERATING COSTS PER REVENUE MILE

(exclusive of depreciation)

YEAR	TRACKLESS TROLLEY	BUS
1945	39.02¢	46.83¢
1946	43.03	51.00
1947	45.21	55.30
1948	54.77	61.53
1949	54.90	64.87

Average seating capacity of MTA trolley coaches is 42; self-propelled vehicles have an average seating capacity of 38.

GENERAL ELECTRIC

151-33

on the bar on the top of bus seats. The average bus can carry 10 to 12 stretchers.

The transit industry of New England consists of 87 companies, operating 463 rapid-transit cars, 639 trackless trolleys, 860 trolley cars, and over 6,000 buses. The large number of buses operating in New England could be extremely valuable in case of an atomic attack. But the method of making use of them in case of disaster must be worked out in a practical manner.

"Old-Timer" Cities With Trolley Coaches

ATLANTA'S first acquaintance with trolley coaches in 1939 has grown into a fleet of 453, or nearly three-fourths of all the Atlanta Transit Company vehicles. The first one, installed in October 1939, was a Twin Coach. The last 20, installed in 1949, were built by the St. Louis Car Company.

Chicago tried 13 trolley coaches in 1939, and now has over 700. CTA's 10-year modernization program, costing $150,000,000, will be complete in 1955.

Indianapolis has been a noted trolley-coach city for 19 years. Seven repeat orders for 192 trolley coaches have been placed since 1932, when the first 15 went into service.

Seattle is another trolley-coach city, with 307 in service. As with other cities, notably Atlanta, experience in the war years sold this vehicle with the transit management. In Seattle, hill-climbing ability and swift get-away were the selling factors.

Wilmington trolley coaches date to 1939, when 46 were installed. The 72 operating at the present time account for half of the mass vehicles serving this Delaware city of 112,000 population.

General Electric records of the total number of trolley coaches operating in these five cities show 1,391, of which 744 are driven by G-E motors and controls. They were built by the following companies: 371 by ACF-Brill, 199 by Pullman Standard, 92 by St. Louis Car Company, 45 by Marmon-Herrington, 29 by Twin Coach, and 8 by others.

"Non-Stop" Traffic On New York's 125th St.

A NEW progressive signal system providing for continuous movement of traffic in both directions went into operation on 125th Street, from First Avenue to Broadway, in New York City, on February 26, 1951. This operation is the first to be applied by the Department of Traffic to a major cross-town Manhattan artery, and is the second section of the new traffic-signal operation plan devised for all Manhattan.

The speed is set for 23 miles per hour. Many cars will travel the entire 13 blocks without stopping, in one-third the former time. Some will make one or two stops, as compared with six to ten.

Added safety for pedestrians is provided by the reduction of the total signal cycle from 90 seconds to 60 seconds. They wait no longer than 30 seconds instead of 60 seconds for a green light. This results in better observance of signals by pedestrians.

Signal-timing equipment was either replaced or added to at the 14 intersections along the improved segment of 125th Street in order to obtain the necessary progressive operation. In addition, it was necessary to move two master relay stations controlling the simultaneous system on the avenues north and south of 125th Street. Says Commmissioner of Traffic Lloyd B. Reid: "Just as progressive timing on Ninth and Tenth Avenues has shown what can be done to improve movement on the avenues, the progressive timing on 125th Street will demonstrate what can be accomplished on wide two-way streets crossing Manhattan, such as 14th, 23rd, 34th, 42nd, and 57th Streets."

Trade Rules of Parking Meter Industry

TRADE PRACTICE rules for the Parking Meter Industry have been set forth by the Federal Trade Commission to protect the purchasing public and maintain fair competitive conditions in the industry. Proceedings leading to the establishment of rules, several of which are abstracted below, were instituted upon application made on behalf of industry members.

RULE 1—It is an unfair trade practice to make any statement by way of advertisement or otherwise which has the capacity of misleading or deceiving purchasers or users: (a) with respect to the quality, size, capacity, durability, serviceability, life, performance, mode of operation, currency of meter, design, construction, or constituent materials of any product of the industry; or (b) with respect to any service offered, promised, or to be supplied to purchasers of such products; or (c) with respect to the manufacture, distribution, servicing, or terms or conditions of sale, of any industry product, or in any other material respect.

RULE 2—The defamation of competitors by falsely imputing to them dishonorable conduct, inability to perform contracts, questionable credit standing, or by other false representations, or the false disparagement of competitors' products in any respect, or the false disparagement of their business methods, selling prices, values, credit terms, policies, or services, is an unfair trade practice.

RULE 7—It is an unfair trade practice for a member of the industry, directly or indirectly, to give, or offer to give, or knowingly permit or cause to be given, money or anything else of value to agents, employees, or representatives of customers or prospective customers. For the purpose of these rules, the sentence above will be construed to embrace bribery and attempted bribery of elected or appointed public officials and employees or agents of municipal, county, parish, or state governments, or of the Federal Government, or of any branch or division thereof.

RULE 8—It is an unfair trade practice to induce or attempt to induce the breach of existing lawful contracts between competitors and their customers or their suppliers by any false or deceptive means whatsoever.

In all there are 20 rules. Besides those given in substance above, other unfair practices are deceptive use of trade names, false invoicing, fictitious prices and guarantees, selling below cost, and unfair threats of infringement suits. A 12-page pamphlet giving the Trade Practice Rules for the Parking Meter Industry is issued by the Federal Trade Commission, Washington, D. C.

Status of Off-Street Parking

FROM time to time, city officials and civic bodies inquire about methods of providing and financing off-street parking space. In Allentown, Pa., merchants formed a group, acquired nearby lots, and called their widely copied plan, "Park and Shop." (See page 137). Similarly, Minneapolis, which opposed municipal ownership and operation of off-street lots, worked out a plan whereby merchants subscribed $1,000,000 and a loan was secured from an insurance company for another $1,500,000. In addition, several banks and department stores have arranged for their own spaces.

In California, several cities have adopted a so-called "assessment plan." This means that adjacent and benefiting taxpayers are assessed to provide off-street facilities.

Pennsylvania and New York have laws permissive to authorities, the one general, and the other requiring legislative approval in each specific instance. The Pennsylvania law is considered to be

GLARE ELIMINATED

without sacrificing efficiency

California state highway specifications called for: *"high roadway brightness, with* additional shielding *to prevent distracting glare . . .* at a no more than 2% loss in lighting efficiency."

A special shield for the Westinghouse OV-20 mercury-vapor unit minimized glare and showed these results: *less than 2%* loss in efficiency.

With thousands now installed, they have discovered that this is also one of the easiest street lighting systems to maintain. Relamping is a one-hand operation, because of the hinged construction. Routine cleaning is speedy.

What's more, this unit provides lighting distribution patterns for both wide and narrow highways.

It will pay you to investigate the Westinghouse mercury-vapor street lighting systems. Send for B-3876-A, Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa. J-04300

YOU CAN BE SURE... IF IT'S

Westinghouse

PLANNED LIGHTING SYSTEMS

an excellent piece of legislation, and information about it can be obtained from Charles F. Lee Decker, Executive Secretary of the Institute of Local Government, Pennsylvania State College, Pa.

Seven states now have legislation permissive to revenue-bond financing for off-street facilities and, owing to a recent Supreme Court decision, Florida can probably be added to these, although pending legislation there has not yet been approved. The Michigan statute is considered to be a good law, worthy of study.

Five states have laws permissive to issuance of general-obligation bonds. The difficulty of this method is that most cities are too near their debt limitation to follow the procedure.

In several other states, cities may own and operate off-street lots, but may not incur any debt in acquiring them. This is the case here in Ohio; if a city has a surplus, it may acquire land—but how many of them have surpluses?

DEANE DANA, *Director*
Market Research
Dual Parking Meter Co.
Canton 2, Ohio

It's Easier to Park and Shop in Allentown, Pa.

A NEW Park & Shop building consisting of three modern stores with a built-in, 158-car parking ramp garage and deck opened in Allentown, Pa., on February 1, 1951. It is the latest in the chain of parking lots around the Hamilton Street shopping center. At present, 12 large Park & Shop lots serve the stores "only 300 steps from car to counter." How the merchants solved the parking problem was explained on page 77 of THE AMERICAN CITY for March 1947. The system works like this:

1. Park on any Park & Shop lot and pay the regular fee of 25 cents for two hours' parking.
2. Shop in any Park & Shop store and have your parking ticket stamped by the clerk.
3. Your money will be refunded by the parking-lot operator when you claim your car.

This parking system is famous. Said *The Morning Call* of Allentown, Pa., on January 31, 1951: "No less than 150 cities in 37 states, all plagued with the same problem of too many cars and too little space, have written for detailed information in the hope Allentown may hold the answer.

They know about it in sprawling Los Angeles and tiny Multnomah, Ore.; in Manhattan, Boston, and Philadelphia, and Kokomo, Ind. Everywhere across the country they're casting glances at Park & Shop's way.

Allentown isn't the only city in which "It's Easy to Park & Shop."

At least five other cities are using the identical plan, or operations based on the local system. They are Cleveland, Ohio; Wilmington, Del.; Bristol, Va.-Tenn., and Chambersburg, Pa.

For a dollar a year, Park & Shop leases the use of its name, its insignia, slogans, etc. The offer is open to any community beyond a 40-mile radius of Allentown.

Largest of the Park & Shop operators, incidentally, is the Cleveland organization, which has more than 100 cooperating merchants. The parking project there is sponsored by the Board of Trade of University Center (East Cleveland at 105th and Euclid), so named because of Western Reserve University. Prime mover in the organization is Attorney Ray Bieber.

Park & Shop in Allentown now controls 1,072 auto spaces "less than 300 steps from car to counter." More than a third of a million cars are parked a year, 15% of them validated by the subsidizing merchants who write off the costs for their customers.

Park & Shop's assets today total $720,000, about half of which is invested in the new project, the 12th lot in the system. Officials of the corporation, projecting the plan to 1960, see a million-dollar organization before the real needs of the city are met.

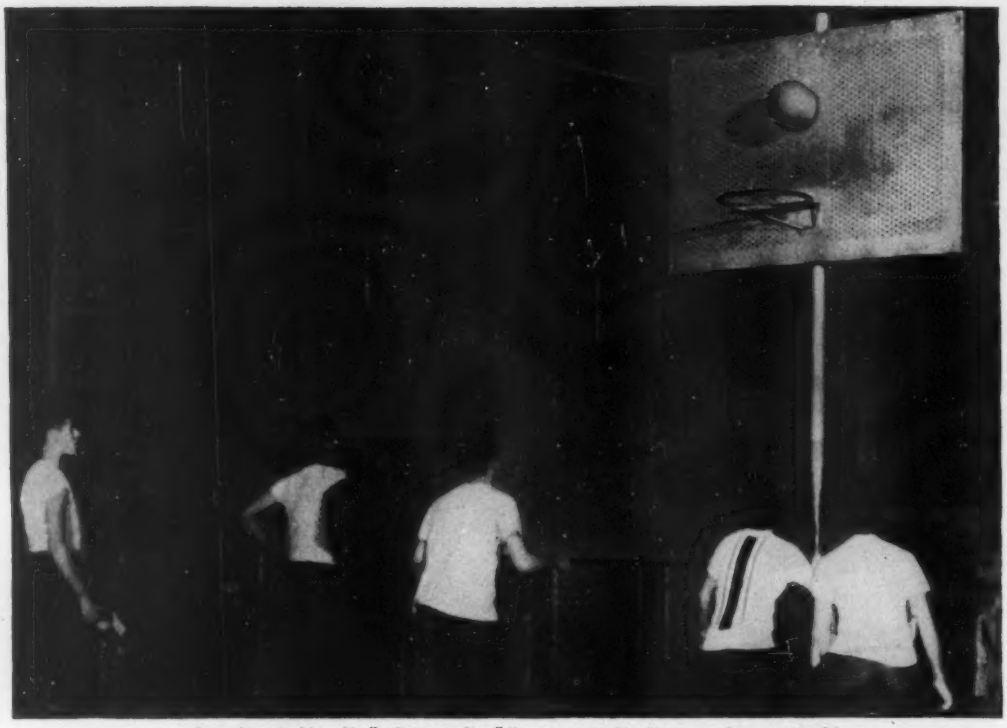
Self-Powered Traffic Signal

WHEN the City of Newark, Ohio, found itself with more accident intersections than traffic signals, Mayor Edwin J. Haynes called a meeting with Service Director Edgar Hare, Safety Director Frank Robinson, and City Electric Inspector Elmer E. Leedy. Mr. Leedy was the man with the idea and that famous know-how. He not only suggested a portable traffic signal having its own generated power supply, but he followed this suggestion up by designing one. The city-garage mechanics, Clifford Moody and Frederick T. Pritchard, proceeded to build this portable traffic signal.

Mounted on rubber dolly wheels, it can be rolled to any congested unsignalized intersection. It is 7½ feet high with a standard signal head, but when desired can be turned red on all four sides for shutting off an intersection. Power is supplied by a 400-watt, D. W. Onan generator installed in the base, along with a gasoline tank sufficient for 20 hours' unattended operation.

Municipalities not having Mr. Leedy on their staffs will be glad to know that two traffic signals of similar purpose are on the market. Both were described in THE AMERICAN CITY for August 1950. One is a spring-operated portable signal built by the Peters Metal Products Company, of Hawthorne, Calif. A clock-revolved drum is lettered "stop," "caution," and "go," and works for a day on one winding. The other is a two-way, two-section signal head with time clock and push-button. It is built by the Eagle Signal Corporation of Moline, Ill.

This is Newark, Ohio's, new portable traffic signal assembled by (left to right) City Mechanics Clifford Moody and Fritz Pritchard, under the direction of City Electrical Inspector Elmer E. Leedy (center), the designer. Mayor Edwin J. Haynes and Service Director Edgar Hare are at the right of the signal.



Scene from the 16mm film "A Chance to Play." Your community, like this one, can have a successful after-dark recreation program. G-E can help you sell the program and plan the installation.

From complete parks to single units—G-E can help with your RECREATIONAL FLOODLIGHTING

Planning sports floodlighting? General Electric's "Manual of Floodlighting Plans" covers all types of sports, gives complete specifications from the exact location of poles to wiring details! The hardest part of *any* lighting job—the engineering—is already done for you when you refer to this complete manual.

Have an unusual floodlighting problem? Highly-trained General Electric lighting specialists are available for on-the-spot consultation with you. The rare installation that can't be handled by your local contractor or from standard plans included in General Electric's "Manual of Floodlighting Plans" will need the sound estimating judgment and versatile layout experience of your G-E Lighting Specialist. Call or write him at your local General Electric sales office.

Civic leaders approve a scale-model of proposed recreation facilities. Scene is from the 16mm film, "A Chance to Play."

Use this 16mm Movie! Make it easier to sell your community on the need for adequate recreational facilities. Show interested groups this dramatic documentary film, produced by the March of Time for the General Electric Company. Write to Section 451-163, General Electric Company, Schenectady 5, New York, for complete information on either the "Manual of Floodlighting Plans" or the film "A Chance to Play." Your local G-E distributor or G-E sales office will be glad to help you plan your recreational floodlighting.

GENERAL ELECTRIC

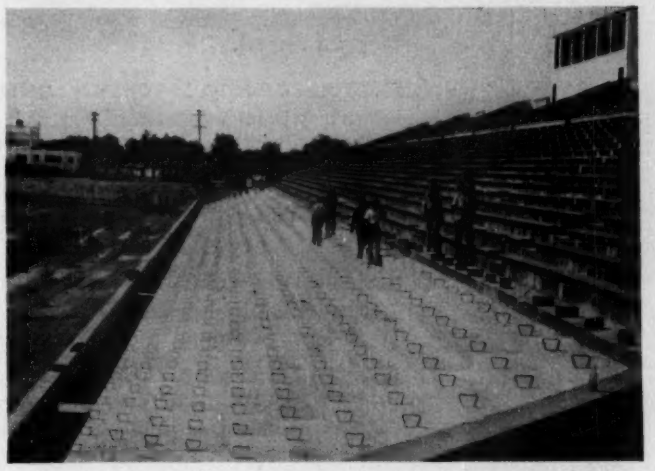
451-163

Memorial Stadium Enlarged and Relighted

By J. A. WILLIAM
City Manager
Columbus, Ga.

MEMORIAL STADIUM, in Columbus, Ga., which is the site of the annual Georgia-Auburn football game, has been extensively enlarged and improved during the last two years. In addition to 7,170 new seats, a completely new lighting system was installed in back of the stands, and the playing field was regraded, drainage facilities installed, and grass planted in a new soil.

The game between the University of Georgia "Bulldogs" and the Auburn "Tigers" is the oldest continuous rivalry in the South, having started with the first football game played in the South in 1892. Columbus literally adopted this game as its own in 1922, and built the Memorial Stadium as a means of keeping the game here each year. Columbus citizens purchased guarantor



Concrete is down and seat brackets are placed for 11 more rows of seats.

The bigger, brighter (25 foot-candles on the field) Memorial Stadium, with permanent seating for 22,720 spectators.

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SEAMLESS TUBULAR STEEL POLES

We can furnish steel poles for various strength requirements and luminaire mounting heights.

PIPE BRACKETS AND MAST ARMS

The popular upsweep bracket is illustrated; there are many other designs from which to choose.

Our new Street Lighting Catalog lists complete details of various metal and porcelain head combinations, receptacles, sockets, and different I.E.S. light distributions for above luminaires; also data on steel poles, accessories, etc.

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rights to provide the funds for the construction of the original stands seating 15,550 persons. Approximately $45,000 was raised by this same method in 1948 and 1949, and was used to pay for the 7,170 additional seats, which made a total of 22,720 permanent seats.

The elevation of the playing field was lowered 7½ feet by excavating the dirt and spilling it immediately outside the stadium in low areas. Eleven rows of seats were then constructed on each side of the slope of the excavation, extending from the old seats toward the side-line of the playing field.

Slope Proved Satisfactory

The effect of lowering the elevation of the field on the ability of spectators to see over or past others caused concern, as the slope of the old seats was rather flat. However, no noticeable ill effect has been experienced in the two years since work was completed.

Excavation by the work forces of Muscogee County, under the supervision of County Engineer W. J. Long, started February 1, 1949. Construction of the concrete seats, drainage, and soiling and sodding of the playing field was done by the Public Works Department of the City of Columbus, under the supervision of D. T. Grider, Superintendent of Public Works. Engineering design was by C. M. Dixon, City Engineer. The project was completed September 15, 1949.

Lighting System Rebuilt

The lighting system was rebuilt during the summer of 1950, and all poles were moved outside the area within the stadium. Three Union Metal Manufacturing Company monotube steel poles, 100 feet high, were erected on concrete foundations about 20 feet outside of the concrete stands; and 32 Westinghouse 1,500-watt, 105-volt fixtures were installed on each of these poles. The 25 foot-candles of light on the playing field make Memorial Stadium one of the best-lighted football fields in the South.

The lighting system was constructed by contract with the Stuart Electric Company, of Columbus, at a cost of $24,512.67. Engineering design and supervision was by City Engineer C. M. Dixon.

The Memorial Stadium is operated and maintained by the city Recreation Department at a cost of about $4,000 per year. It is rented for high school, college, and sandlot games at $100 per game or 5% of net gate receipts after federal taxes—whichever is larger. The city also receives one-half the gross profit on all soft drinks, peanuts, sandwiches, etc. Gross revenue from these sources are about $6,000 to $7,000 per year.

Taunton Gets 35 New Mercury-Vapors

Weir Street has 35 new 21,000-lumen mercury-vapor luminaires, 30 feet above pavement on Kerrigan standards (below, left). Replacing 30 radial-wave units of 600 lumens each, the new intensity is 2.1 foot-candles; the old was 0.3. Harry Wilson of General Electric and Taunton Municipal Lighting Plant engineers worked out this installation. Above, left to right, are Councilmen Thomas H. Reed, Joseph F. Arcikowski, Joseph C. Chamberlain; Mayor John F. Parker; Councilman Joseph Jacinto, and Superintendent of Streets Ralph L. Hopkins. C. A. Oliver is Manager of the Municipal Lighting Plant.

Lighting on Residential Streets Made Simpler

THE PROBLEM of lighting residential streets where traffic is light but crime can strike at any dark hour, is made simpler by a new open suburban reflector or luminaire. It replaces the radial-wave reflector which, though widely used, was never too popular because the light source was visible, and the light extended to porches and upstairs windows. It was also wasteful.

This new open suburban-street fixture directs most of the light up and down the street, yet furnishes sufficient general illumination on sidewalks to assure safe pedestrian movement. There is no objectionable glare or wasted light on house fronts. It is made of Alzak aluminum and has no glassware. The design of this fixture is such that the filament of the lamp is positioned above the bottom edge of the reflector to shield it from view, thus eliminating the main cause of glare. The net result is high-quality street lighting.

The Duquesne Light Company, of Pittsburgh, Pa., reports that a new street-lighting system, using these fixtures, was recently installed on Ravenswood Avenue, Ross Township, Pa. Although there was a great improvement in the street lighting, and lighting intensity was increased many times over the old lighting, the increase in cost was nominal.

Maintains roads and streets. Slopes banks. Cuts ditches. Grades shoulders. Levels subdivisions. Finishes between forms. Works and spreads oil mix. Strips sod. Handles terracing.

Loads sand, gravel, snow, other bulk material . . . surplus dirt from roads and streets. Rear-mounted, ⅜ cu. yd. bucket, hydraulically controlled.

only the model D can handle *so great a variety of jobs* – at a new low cost

WEIGHT — 8,500 lb. (bare)
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SPEEDS — four forward, to 18.6 mph.; reverse to 2.9

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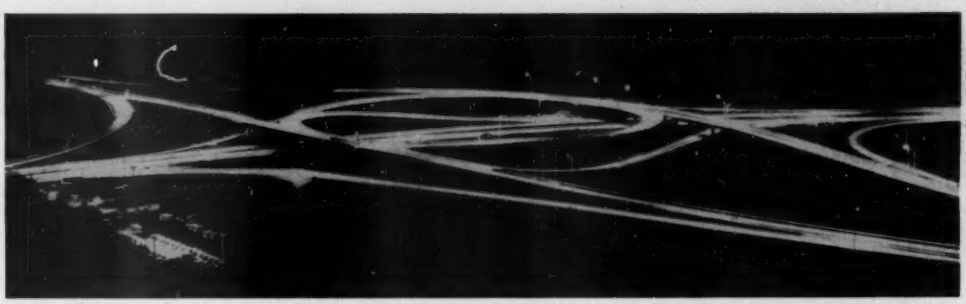

This interesting pattern of light is the Cabrillo Freeway in San Diego, Calif. The upper level is the east-and-west divided highway which leads to Mission Valley. The lower level is the freeway between San Diego and Escondido.

Lighted Traffic Interchange on Cabrillo Freeway

The interchange lighting was engineered by the State Division of Highways. The brackets range from 6 to 18 feet in length, the long extensions being necessary where the standards are set well back from highway berm.

THE Cabrillo Freeway, beginning at 11th and A Streets in San Diego, Calif., follows Cabrillo Canyon, passes under the Cabrillo Arch Bridge, and continues through the length of the city and out on to the mesa, and thus northward. This is U. S. Highway 395 to the Canadian border. First planned in 1938, ground was broken in February 1946, and the freeway was opened in the fall of 1950. The work required 1,500,000 man-hours of labor, the relocation and reconstruction of over 2.5 miles of city sewer and water mains and over 2,000,000 cubic yards of excavation.

An especially interesting unit of the freeway project is the traffic interchange connecting the freeway with the Mission Valley Road. This unit provides for the free flow of traffic in any and all directions with a minimum of interference. It is said to be the first traffic interchange of this particular type to be placed in service in California.

To make this freeway as effective at night as in the daytime, 138 Westinghouse OV-20 luminaires are installed on Union Metal poles 35 feet in height with 20,000-lumen mercury-vapor lamps. These luminaires are positioned at points of unusual hazard or friction, such as at "on" and "off" ramps and speed-change lanes. The excellent results obtained are attributed to three factors: the use of glare shields, the high reflectance value of the cement-concrete pavement, and the wide median between pavement lanes which reduces glare from oncoming vehicles.

Biggest Luminaires Installed in Miami

FORTY-EIGHT giant fixtures, 21 inches in diameter and nearly a yard high, have been installed along a quarter-mile section of Biscayne Boulevard in Miami, Fla. In each of the luminaires is a 25,000-lumen lamp. There aren't any larger incandescent street lights. They are mounted on poles able to withstand hurricane winds up to 170 miles an hour.

As against an illumination level of only 0.33 foot-candles provided by the old system, the new system gives an average illumination of 1.22 foot-candles. The General Electric luminaires are mounted 28 feet above the pavement on 8-foot brackets. Existing pole bases were used. Into these were fitted specially designed Union Metal octaflute shafts. The relighted area of the boulevard has two 60-foot-wide traffic lanes, with two parking lanes.

The world's largest incandescent street lights, mounted on poles able to withstand hurricane winds, illuminate this section of the Biscayne Boulevard.

Municipal News Brevities

City Beautification Plan

Mayor August Schoppman of Mount Olive, Ill., has hit upon a unique personal scheme for city beautification. For the second straight year he has issued a dozen gladiolus bulbs to each woman in the city who wishes to grow them.

Dearborn Sponsors "Grass Roots" Breakfasts

Mayor Orville L. Hubbard, of Dearborn, Mich., wants to be sure that all his department and division heads keep attuned to the city's "grass roots" thinking. He has inaugurated a series of weekly breakfast meetings, to which he invites civic leaders from various areas to come down and give the private citizen's point of view to all segments of the city's official family.

Civil Defense Plans Need Second Look

To what extent individual communities should go ahead with civil defense planning is still an open question, according to the report of an interview with Leonard Dreyfus, State Director of Civil Defense for New Jersey, published in April by the Newark *Star-Ledger*.

Director Dreyfus declared, according to the report:

"It is obvious that if each community prepares its own defense plans independently of any master plan, purchases its own supplies without consideration of uniformity, and trains its own personnel, there will be chaos and confusion when an emergency requiring mutual aid occurs." He pointed out that persons trained in certain methods for first aid and civil emergency work with special equipment would be "useless under emergency conditions if they were ordered to assist in another community where defense measures are different."

Director Dreyfus urged that municipalities wait for the state master-civil-defense plan to be completed.

Financing Costs Down in 60 Years

Sauk Centre, Minn., recently was reminded that the cost of financing city government has gone down a deal deal in the last 60 years. In opening the cornerstone of the city hall now being torn down to make way for a new structure, they found bonds bearing 6% interest, payable to Park National Bank of New York. Reported Robert Freeman, president of the Council: "Our last bonds for the new hospital went at 1.3%—quite a difference."

Municipal-Industrial Cooperation on Civil Defense

Municipal-industrial cooperation on civil defense was well displayed recently in Wyandotte, Mich. There the Wyandotte Chemicals Corporation has conducted an effective information program directed not only at its own 12,000 employees, but also at 23,000 other citizens of the community. The Corporation has published full-page ads on civil defense in local papers, shown films, and made available, to everyone in Wyandotte, reprints of a special issue of its company publication devoted entirely to "The Atomic Bomb and Civil Defense."

Municipal Spring Housecleaning

Like housewives, municipal officials would do well to designate a "Spring Housecleaning Day" for their various departments. In Kansas City, the entire staff of the Welfare Department was on duty on Saturday, April 14, to lend a hand in cleaning up. Files were checked and put in order and obsolete materials eliminated. All records and reports not in current use were sent to a storeroom. A "Clean Desk" policy was inaugurated, and all of the "accumulata" were properly filed or destroyed. Printed forms and other printed matter no longer used were sent to the Duplicating Division to be made into scratch pads, in order to conserve paper.

Seattle Interested in Industrial Decentralization

The Seattle City Council authorized the City Planning Commission in April to participate in a study on establishing new defense and essential industries in the Puget Sound area outside Seattle. Harold Shefelman, Commission chairman, said that emphasis of the study, initiated by the Seattle Chamber of Commerce and the King County Planning Commission, will be to determine how and where new industries can be located to avoid a congestion of important plants in Seattle.

High School Students Govern University City for Day

The third annual observance of High School Day was held recently in University City, Mo., when 53 high school students were assigned to positions in the University City government. The students held a mock council meeting of their own and later participated in the regular council session.

New York City Housing Construction Record

More than 47,000 persons moved into 14,400 newly completed apartments built by the New York City Housing Authority during 1950—almost twice as many completions as in any previous year. An additional 6,000 families moved into vacated apartments in previously completed projects. These figures are reported in the Authority's 17th Annual Report, issued April 2.

In addition to opening a record number of apartments, the Authority also began active planning of 24 new federally aided and state-aided projects to provide homes for more than 27,000 families. Nine new projects, to provide homes for over 9,800 families, were started during the year; 23 others were in various stages of construction, making a total of 32 projects costing $390,000,000, and providing 34,500 apartments being built in 1950.

Preparing for Tourists

Looking forward to the forthcoming vacation and tourist season, and well prepared for it, is the town of Front Royal, Va. L. B. Dutrow, Town Manager, informs THE AMERICAN CITY that a special five-day, 10-hour "Tourist Information School" has just been concluded, at which the Town Manager and the Chief of Police were discussion leaders. The school was held in cooperation with the Chamber of Commerce Tourist Committee. Perfect attendance certificates were awarded to 27 persons.

Relaxing Civil-Service Physical Requirements

Municipal officials who are having trouble filling certain departmental vacancies may take a tip from Police Superintendent Robert J. Barrett of the District of Columbia, who has relaxed age and height requirements for new policemen.

From now on until July 1, 1952, the maximum age will be 32, instead of 30, for new applicants, and the minimum height will be 5 feet, 7 inches instead of 5 feet 8 inches. The minimum age remains at 21. Also, a former policeman may be reinstated if he is no older than 34.

The District Commissioners have also been asked by Barrett to relax the rule that new policemen must have 18 of their own teeth. The city heads are awaiting a recommendation from the Board of Police and Fire Surgeons on that matter.

Education Through Television: A Priceless Opportunity

An appeal for local support of a proposal by the Federal Communications Commission to reserve a television channel in a large group of cities for use by schools, educational institutions, and quasi-public civic and community organizations for non-commercial, educational purposes was made in April by Mayor David L. Lawrence of Pittsburgh. Mayor Lawrence pointed out that these TV channels represent one of the country's most valuable natural resources, and that unless they are reversed now, they will be forever lost to education.

Mayor Lawrence asked that municipal chief executives take the leadership in calling together educational and civic leaders to mobilize tangible evidence of support for filing with the F.C.C.

San Diego Deflates City Workers' "Sick" List

Average sick-leave usage among the 3,000 employees of San Diego has dropped from nine days a year to three since Raymond Krah, personnel director, began a series of three "treatments" for malingering and borderline sick-leave abuses.

Treatment No. 1 consisted of a chart posted in the office of every department, showing where each department ranks in the race to lower sick-leave use. This was coupled with talks with all department heads, and making them responsible for sick-leave approvals.

Treatment No. 2, for the cases that get by the department heads, is a quiet talk between the violator and the personnel director.

Treatment No. 3 has been found especially potent for certain employees who stretch weekends into real vacations. City employees are off Saturdays and Sundays, but the "vacationists" would take sick leave on Friday and again on Monday. Now workers reporting sick on Friday and Monday lose four sick-leave days. This is possible through a city attorney's ruling that municipal employees are always subject to call.

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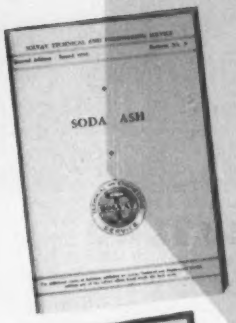

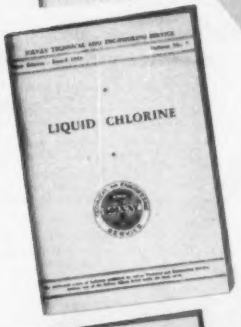

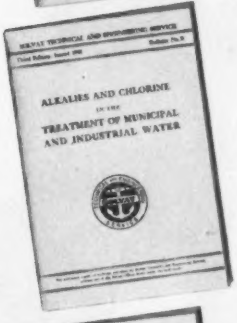

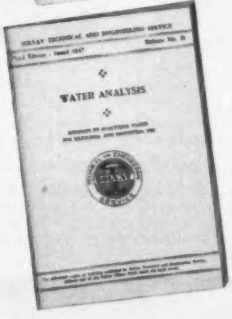

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Four forward speeds — 1.9 to 18 mph. Four reverse — 3.5 to 28.5 mph.

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Operator uses only foot throttle and bucket levers to get his load. Torque converter action eliminates butting and ramming . . . reduces shock and clutch wear.

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Zoning and Planning Notes

Edited by NORMAN WILLIAMS, JR.

Non-Residential Uses In Residential Areas

UTAH. *Phi Kappa Iota Fraternity v. Salt Lake City*, 212 Pacific (2d) 177 (Utah Supreme Court, December 6, 1949). The fraternity and sorority houses of the University of Utah have developed immediately north of the campus, partly because expansion on two other sides of the University was blocked by a cemetery and a fort. Since 1939 the regulations of the Residence A district permitted fraternities and sororities only in the area of their chief concentration, within 600 feet of the university to which they belonged, in order to protect the quiet residential area beyond from the noise and congestion created by the students. In this case this restriction was challenged by two parties, a fraternity which bought property beyond the 600-foot limit and a homeowner who lived right at that limit. The Court reviewed the various possible solutions which could be adopted to handle the problem, and held that it was up to the local legislature to make its choice between these. In particular, the Court held that it was quite logical to classify a fraternity as something quite different from an ordinary boarding house. The opinion also contains one of the few overt judicial indications of the great importance of traffic considerations in zoning.

CONNECTICUT. *Wadell v. Board of Zoning Appeals of City of New Haven*, 68 Atlantic (2d) 152 (Connecticut Supreme Court of Errors, August 9, 1949). In preparing to build a parochial school on a tract developed with a church and a rectory in a residence district in New Haven, the church authorities elected a site which would encroach 11 feet into the 20-foot side yard required for such structures in that district. The adjoining homeowner objected, arguing that plenty of room could be available elsewhere on the same tract by demolishing some old frame structures. In reply, it was argued that these frame buildings were needed for school purposes during the period of construction, and that at the proposed site the proposed encroachment was necessary to avoid having to make the classrooms too small. The Court upheld the grant of a variance on the ground of hardship, over the vigorous dissent by one judge.

Smoke Control

NEW JERSEY. *Board of Health of Weehawken Township* v. *New York Central Railroad*, 72 Atlantic (2d) 511 (Supreme Court, March 27, 1950).

A local ordinance in Weehawken (opposite New York City) forbade emission of smoke of a density greater than that described as No. 2 on the Ringelman chart; and criminal proceedings for violation of this ordinance were brought by the local Board of Health against the New York Central and against the engineer at their power plant. The Court upheld the conviction, against several arguments. First, previous decisions had established that, in the absence of negligence, the emission of smoke by railroad locomotives was not subject to local control in New Jersey, on the ground that this may be a necessary incident in the operation of railroads under a state franchise; but the Court refused to extend this doctrine to include railroad power plants. Second, the defense that smoke resulted from the temporary use of high-volatility coal, because a miners' strike made medium-volatility coal temporarily unavailable, was held not to be established by the evidence. Finally, the Court stated that the determination that such smoke was objectionable was not an invasion of the judicial province—a welcome variation from the older doctrine that the declaration of a nuisance is practically the exclusive province of the judiciary.

No Variance from Residential Rear Yard Regulations

PENNSYLVANIA. *Phillips* v. *Griffiths*, 77 Atlantic (2d) 375 (Supreme Court, January 2, 1951).

A coach house on an estate in Philadelphia was sold off with rear yards and side yards insufficient to satisfy the local zoning ordinance—the rear yard was 7 feet rather than 25 feet, and the side yards totaled 14½ feet rather than 25 feet. The first purchaser tried unsuccessfully to obtain a variance to authorize the use of the premises as a residence, and resold it to the present defendants, who bought with full knowledge of the situation and moved in. On application by a neighbor, the Court held that occupancy of the coach house for a residence was a violation of the zoning ordinance.

Riding Academy Not A Private School

NEW JERSEY. *Wadsworth* v. *Board of Adjustment of Bedminster Township*, 78 Atlantic (2d) 619 (Appellate Division, February 5, 1951).

The regulations of the Residence A zone in the Bedminster Township zoning ordinance permitted residences, public and private schools, and certain other establishments. It was proposed to use certain premises as a "day school and school of equitation," including instruction in riding and supervision in various recreational activities for children three years and over, after regular school hours and on Saturdays throughout the year. The Court held that a "private school" in the zoning ordinance was limited to a traditional academic school, where attendance constitutes compliance with the compulsory education laws, and that the proposed establishment was really a riding academy.

While the actual decision seems correct, the Court's definition of a "private school" is unduly narrow; the definition cited in the opinion was designed to indicate those schools where courses in the American Constitution would be required—which necessarily involves quite different considerations from those relevant in zoning.

Town Road to Farm

WISCONSIN. *Wilcox* v. *Witek*, 46 Northwestern (2d) 337 (Supreme Court, February 6, 1951).

Upon application by a farmer, pursuant to statute, a Town Board agreed to build a road to his farm, and this decision was affirmed on appeal. A year later a neighbor brought a collateral attack on this decision by certiorari, on the ground that he would have sold the farmer a right of way to an existing highway, and that the proposed road would shut off some of his (the neighbor's) property from access to the highway. Under the statute, if the Town Board was satisfied that the farm included at least forty acres, and that it was impossible to obtain access to a public road, the Board would be acting within its jurisdiction in deciding to build the road. The Court thus refused to review the decision at this late date.

Control Over Heavy Trucking Across a Highway

ILLINOIS. *Northern Illinois Coal Corporation* v. *Langmeyer*, 96 North Eastern (2d) 820 (Appellate Court, January 1, 1951).

A coal company owned land on three sides of the intersection of two Township roads, and on one side (where strip mining operations were begun) built an office building, a coal tipple, repair shops, and various other structures for mining and producing coal. Private hauling roads were built on the property where necessary. When operations were shifted across the two roads, it was necessary to move certain heavy machinery across the roads, and to cross the roads regularly with trucks. Both operations would involve exceeding the weight limitations for the Township roads, and the local Highway Commissioner demanded that the Company obtain a special permit pursuant to statute. The coal company refused, and obtained a temporary injunction, under the protection of which they completed the movement of machinery. The present case involved the movement of trucks back and forth across the road and the Court held that the statute was limited to controlling traffic along the road, and did not apply to this situation.

(Continued on page 149)

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Zoning Notes

(*Continued from page* 147)

Monument Works Forbidden In Business Districts

CONNECTICUT. *Saporiti* v. *Zoning Board of Appeals of Town of Manchester*, 78 Atlantic (2d) 741 (Supreme Court of Errors, January 30, 1951).

In this case the business district regulations permitted *inter alia* "retail shop and personal service establishments; shop for making of articles incident to conduct of a retail business on the premises," but specifically excluded a "stone yard and monument works," and also "any business or service which is detrimental to the neighborhood because of noise, vibration, smoke, dust, odor, fumes or other characteristics." A compressor was installed in a shed behind a retail monument store, to cut inscriptions in monuments by sand blast. Each such operation took at least half an hour, and produced considerable noise and vibration, even after the owner was forced to install a Maxim silencer. After continuous complaints from neighbors in a near-by Residence A zone, the building inspector directed the owner to cease such operations, and the Board affirmed. In contesting this order, the owner naturally argued that the stone-cutting was incidental to a retail establishment, and the neighbors described it as an industrial use not permitted in a business district. The Court held that this type of establishment produced noise and vibration and so was excluded from a business district. The Court also held that the Board's failure to specify the reasons for its decision did not invalidate its order.

The problem presented by this case is a real and difficult one, involving the allocation of space for what may be called "heavy commercial" establishments. Filling stations and other automotive services, building materials and fuel storage yards, small machine and repair shops, monument works and similar establishments provide necessary services, but involve considerable nuisance. In a large city, the zoning ordinance can appropriately provide areas specifically allocated to such services, generally scattered in small clusters through residential areas. Since there is less demand for such space in small towns, such establishments may be permitted either by a small zoning district or by special permit.

As in this case, in smaller communities the zoning regulations for a business district often permit retail businesses generally, without specific listing. This case indicates the problems which are bound to arise in such instances, particularly in connection with accessory processing of materials.

No Injunction Against Elimination of Police Station

MARYLAND. *Phillips* v. *Ober*, 78 Atlantic (2d) 630 (Court of Appeals, February 8th, 1951).

The Police Commissioner of Baltimore was directed by state law to "divide the city into such number of police districts as he may think necessary for the public good." When plans were announced to eliminate the Western Police District and

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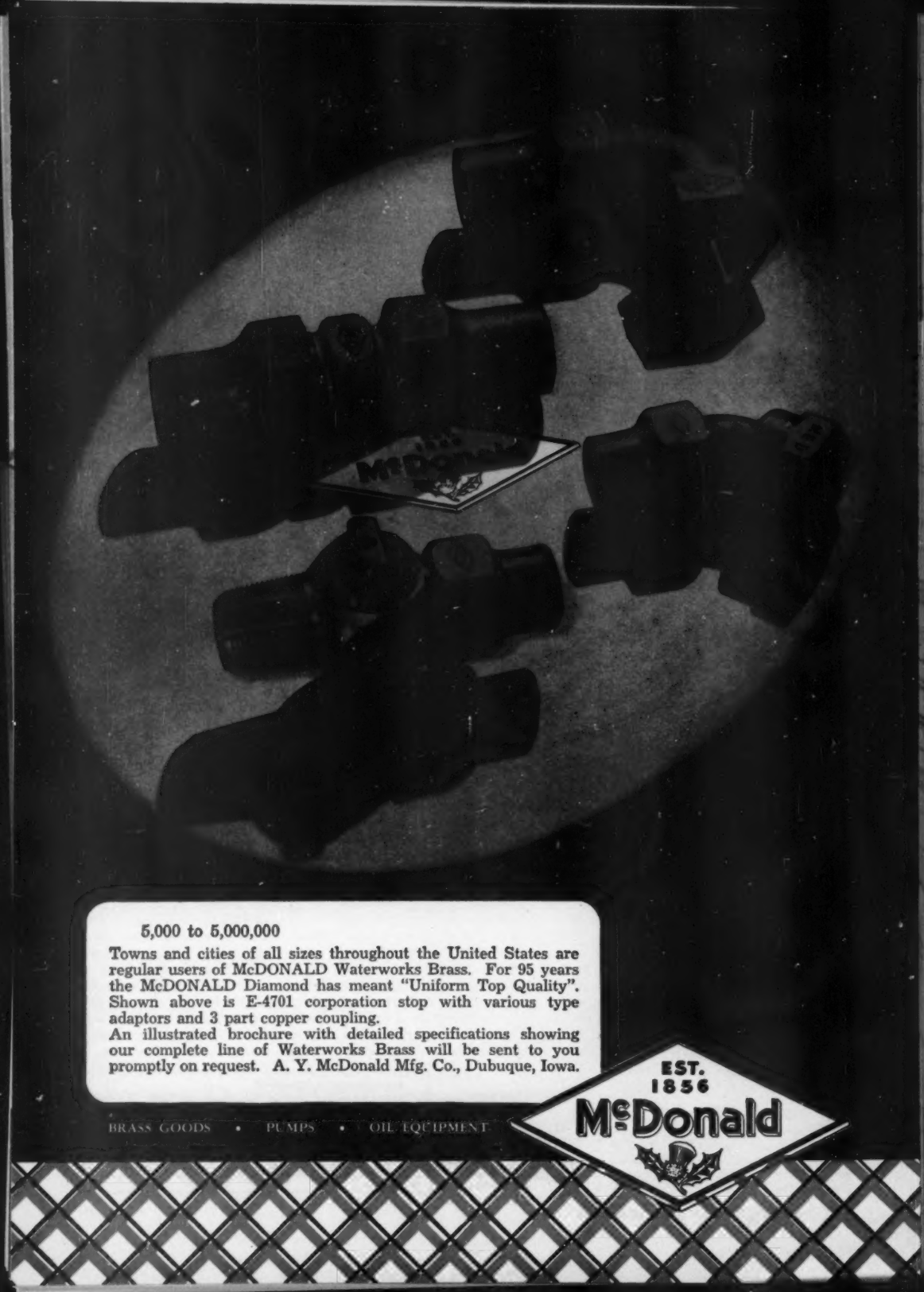

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to close the police station in that District, a building contractor in the area brought a suit to restrain the closing. The plaintiff argued that there would be increased crime in the area, and that abandonment of the police station would force a closing of the local Justice of the Peace Court located in the station, and so constitute usurpation of the power of the Legislature and the Governor to establish a police court. The Court held that, since there was no question of wasting public funds, the plaintiff had no standing to bring an action and to raise these questions.

40 Years of Progress

(*Continued from page* 85)

at Sedalia are equipped for modern sludge-digestion procedures. As a result of competitive bidding on digester equipment, PFT floating steel covers were purchased. Pursuant to this decision, digester piping, supernatant-control devices, gas-control appurtenances, and external sludge-heating systems were designed to yield the desired functional characteristics in conjunction with the general type of digester equipment utilized.

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The sewerage improvement program was initiated during the administration of former Mayor Julian H. Bagby, and has been completed under the administration of Mayor Herb Studer. The excellent cooperation of the Mayor and Council and the Council's Sewer and Sanitation Committee was augmented by the intelligent assistance of the Citizens' Advertising Committee of five members headed by Abe Silverman. James I. Collins is City Engineer and was instrumental in the general development and execution of the program, which involved the award of three equipment and six construction contracts. Burns & McDonnell Engineering Company furnished complete engineering service on the project. The same firm had performed similar service for the City of Sedalia at the instance of original construction of the three sewage-treatment plants. The city sewerage system is in the charge of Sanitary Engineer J. F. Schondelmeyer.

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Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS
Charles S. Rhyne, General Counsel

Airports—Village Not Allowed By State Statute to Condemn Land for Construction

In action by plaintiff for injunction to prevent condemnation of plaintiff's property for construction of airport as authorized by village ordinance, held that such village could not condemn real estate for airport purposes as state statute provided that only cities of first class could acquire land for such purposes. *Spencer v. Village of Wallace*, 45 N. W. (2d) 473 (Neb., Jan. 5, 1951).

Building Codes—Liability for Violation —Fence Considered to Be Structure

In appeal from conviction in Municipal Court for violating section of city building code making construction or maintenance of building structure in dangerous condition public nuisance, held that where fence was described in city building code as structure, one who was guilty of maintaining fence in dangerous condition was guilty of violating another section of code making maintenance of building or structure in unsafe or dangerous condition public nuisance. *City of Chicago v. Pielet*, 95 N. E. (2d) 528 (Ill. App., Dec. 4, 1950).

Buses—Conviction for Operating Without Special Permit or Franchise

Where plaintiff was convicted in city court of violating ordinance by operating bus without special permit or franchise, held on appeal that such ordinance was valid exercise by city of its power and ordinance was not arbitrary or discriminatory. *City of Baton Rouge v. Hutton*, 49 So. (2d) 613 (La., Nov. 6, 1950). *Reh den.* Dec. 11, 1950.

City Employees—Death of Fireman On Duty from Cerebral Hemorrhage —Compensation Allowed Widow

In proceeding by widow brought under the Workmen's Compensation Act against city to recover compensation for death of husband, employee of city, held that evidence was sufficient to establish compensable accident showing probability of conditions surrounding fire and fireman's exertions generated excitement and nervous strain which increased high blood pressure sufficiently to cause cerebral hemorrhage, from which deceased died. *Fox v. City of Plainfield*, 77 Atl. (2d) 281(N. J. Super., Dec. 13, 1950).

City Employees—Workmen's Compensation—Public-Health Nurse in City Hospital Entitled to Award

In proceeding by plaintiff for workmen's compensation which was opposed by New York City Department of Health, held that since plaintiff was public-health nurse in tubercular clinic operated by City Department of Health she was engaged in hazardous occupation and was entitled to compensation. *Hogans v. City of New York, Department of Health*, 101 N. Y. S. (2d) 910 (N. Y. App. Div., Jan. 16, 1951).

City Officers—Resolution Forbidding Office Holding in National Union

In mandamus proceeding to compel defendants to reinstate petitioner as city plumbing inspector or show cause why they had not done so, held that resolution forbidding office holding by city officer in union affiliated with national union was reasonable exercise of authority. *Young v. Board of Building & Safety Com'rs. of City of Los Angeles*, 224 Pac. (2d) 16 (Calif. Dist. Ct. of Appeal, Nov. 16, 1950).

Condemnation — "Going" Business— Property for Which Recovery May Be Had in Eminent Domain

In condemnation proceeding by City of Dallas against appellant's business and residential property, held that "going" business is property for which petitioner is entitled to recover damages in eminent domain proceeding in addition to compensation for loss of property. *Priolo v. City of Dallas*, 234, S. W. (2d) 1014 (Tex. Civ. App., Oct. 13, 1950). *Reh. den.* Nov. 24, 1950.

Contracts—Void—Quantum Meruit Recovery Against Town

Where plaintiff brought action against town on contract for removal of gas-pipeline and contractor was deceived as to number of gas connections, held that plaintiff contractor was entitled to annul whole agreement and recover on quantum meruit basis for work done, but he could not retain contract price and seek recovery in quantum meruit for additional work to be done. *Sylvester v. Town of Ville Platte*, 49 So. (2d) 746 (La., Dec. 11, 1950).

Contracts—Unilateral Mistake in Bid —Not Enforceable by City

Where construction company sued city and members of City Board of Public Works for rescission of contract to construct sludge-plant piping system on ground of unilateral mistake, held that bid by plaintiff of amount of 28% below that intended because of inadvertent omissions of estimate for part of work was unenforceable and resulted from honest unilateral mistake on material feature of contract, which was not caused by neglect of legal duty of plaintiff. *M. F. Kemper Const. Co. v. City of Los Angeles*, 224 Pac. (2d) 861 (Cal. App., Dec. 8, 1950).

Disorderly Conduct—Arrest in Public Park for Conducting Religious Meeting

Where appellants were convicted in circuit court of Maryland County Court for holding Bible talks in public park without permit from city officials, although there was no statute or ordinance prohibiting use of park without permit, held defendants' convictions were in violation of their rights to equal protection of law in exercise of freedoms of speech and religion protected by First and Fourteenth Amendments. *Niemotko v. State of Maryland, Kelly v. State of Maryland*, 71 S. Ct. 325 (U. S., Jan 15, 1951).

Disorderly Conduct—As Related to Freedom of Speech in Public Place

Where appellant was convicted in city court of Syracuse, N. Y., for disorderly conduct when he urged audience to become divided into hostile camps, blocked traffic, and refused request of police officers to cease talking, held that speaker's conviction of disorderly conduct was not in violation of his right of free speech under Federal Constitution. *Feiner v. People of State of New York*, 71 S. Ct. 303 (U. S., Jan. 15, 1951).

Garbage Dump—Right of City to Use Land as Such—When Purchased From Near-by Landowner

In action to have city garbage dump abated as private and public nuisance, held that where owner of land conveyed portion to city for use as garbage dump when only two families lived on remainder of tract and deed to city expressly waived all rights of action grantors may have by reason of use of land as garbage dump, and parties further stipulated agreements and waiver in deed should be covenants running with remainder of lands, such agreement operated as easement on land of plaintiff and subsequent use of remainder of land by 35 or 40 families did not affect duly recorded easement previously granted so as to entitle plaintiff to injunction. *Waldrop v. Town of Brevard*, 62 S. E. (2d) 512 (N. C., Dec. 13, 1950).

Motion Pictures—Arbitrary Censorship Of by City Official

In action against Commissioner of Licenses of City of New York to enjoin defendant from suspending licenses of certain motion picture theaters so long as they showed certain motion picture which commissioner thought was blasphemous affront to certain citizens in community, held that commissioner did not have such authority as this power was vested in Education Department of State, and injunction was granted. *Joseph Burstyn, Inc., v. McCaffrey*, 101 N. Y. S. (2d) 892 (N. Y. S. Ct., N. Y. Co., Jan. 5, 1951).

Nuisances—Injunction Against County For Operation of Hot-Asphalt Plant in Residential Area

In action by local residents against Salt Lake County and commissioners of County to enjoin operation of hot-asphalt plant and operations for extracting and processing gravel including rock crusher in residential area as nuisance, held doctrine of sovereign community would not apply and evidence showed plant to be nuisance which plaintiffs were entitled to have enjoined. *Shaw v. Salt Lake County*, 224 Pac. (2d) 1037 (Utah, Nov. 29, 1950).

Religious Meetings—Ordinance Requiring Permit to Conduct Meetings In Public Place—Unconstitutional

Where appellant was convicted in Magistrate's Court of New York City for unlawfully conducting religious meeting without permit in violation of city ordinance, held that ordinance making it unlawful to hold public worship meetings on city streets without permit from Police Commissioner was invalid as vesting restraining control over right to speak on religious subjects in administrative official without providing standards to guide his actions. *Kunz v. People of State of New York*, 71 S. Ct. 312 (U. S., Jan. 15, 1951).

Rent Control—Federal Rent Control Law—Decision Declaring Action of City Council Void in Lifting Rent Controls Vacated

In petition for writ of certiorari reviewing decision that plaintiff city acted improperly in lifting rent controls, held that decision of U. S. Court of Appeals should be vacated and cause remanded to District Court with directions to vacate judgment and dismiss complaint upon grounds cause was moot. *City of Los Angeles v. Tighe Woods*, 71 S. Ct. 294 (U. S., Jan. 2, 1951).

Workmen's Compensation—Injury During Off Hours

In proceeding under Workmen's Compensation Law of injuries sustained during off hours on city property, held injuries received by laborer at municipal water plant when he fell from tree while gathering nuts for himself did not arise out of and in course of employment. *Williams v. City of Columbia*, 62 S. E. (2d) 469 (S. C., Dec. 6, 1950).

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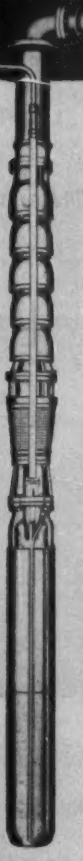

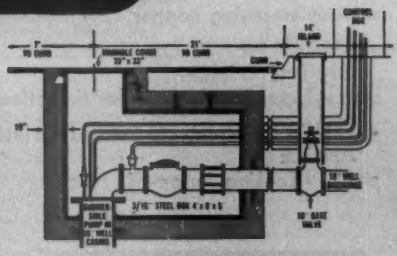

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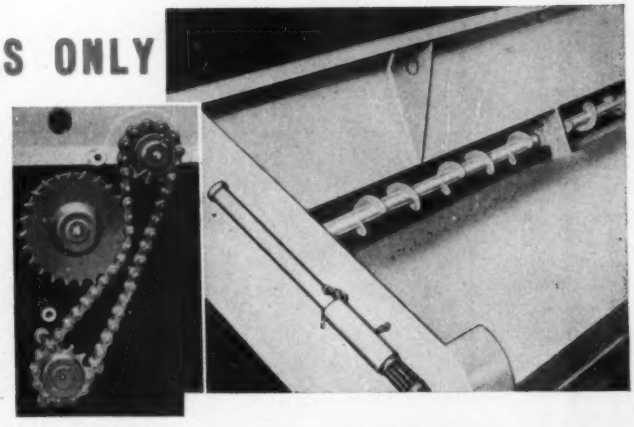

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The Municipal Bond Market

The Municipal Bond Market

Levels Off After Bad Slip

By CATHERINE CLARK
Municipal Service Department
Dun and Bradstreet, Inc.
New York, N. Y.

AT THIS WRITING, the municipal bond market shows signs of leveling off, after a period of slipping badly. The *Bond Buyer's* index of the yield on 20 municipal bonds rose from 1.58% on February 8 to 1.93% on April 12. In other words, in the middle of April you could buy a municipal bond, of fairly long maturity, and get about 0.35% more annual return on your investment than if you had bought a bond of the same description in early February. Needless to say, this also means that cities which sold bonds in April obtained a less favorable interest rate than those which sold in early February. There is consolation in the fact, however, that the interest rates of April 1951 are still considerably lower than those which obtained at any time from late 1947 through the first half of 1950.

Factors in Price Fall

In simplest terms, municipal bond prices have fallen because the Federal Reserve System has withdrawn its "peg" of Government bond prices. Other factors may be involved: municipal prices had risen so high that some readjustment might have been expected; the recurrence early this year of the proposal to make income from state and municipal bonds subject to federal income taxes introduced a note of uncertainty into the market. Essentially, however, municipal prices have followed the trend of Government bond prices.

This column is too short, and this columnist not enough of an economist, to go into all the theoretical implications of the Federal Reserve's action, but a review of the events which led up to it and followed it may shed some light upon the course of the municipal market.

The newspapers early this year were full of the controversy between the Federal Reserve Governors and the Treasury as to the path which interest rates on Government securities should be allowed to take. The Treasury, conscious of the borrowing which the re-armament effort would require, took the position that the interest rate on long-term Government bonds should be maintained at 2½%. Secretary Snyder said in a speech that he did not think small increases in the interest rate would have noticeable effect on the control of bank credit—i.e., in controlling inflation—while they would substantially increase the cost of carrying the public debt. Most of the Federal Reserve Governors disagreed—as did an impressive number of leading economists.

The resolution of the controversy was contained in an announcement released for publication on March 4: "The Treasury and the Federal Reserve System have reached full accord with respect to debt-management and monetary policies to be pursued in furthering their common purpose to assure the successful financing of the Government's requirements and, at the same time, to minimize monetization of the public debt." At the same time it was announced that the Treasury would offer a non-marketable 2¾% bond, due in 1980 and callable in 1975, in exchange for its outstanding bank-restricted (that is, bonds not eligible for bank investment) 2½% issues due in 1972 and callable in 1967. One of these convertible issues was the "Victory" issue of December 15, 1972-67.

Up to this time the Federal Reserve had been "pegging" the market on the Victory issue at 100-22/32. That is, it would buy any bonds offered at that price. As a result, of course, the market was stabilized at or above that level. Now let us look at what happened to the market on the Victory issue after March 4 and see if its course can be paralleled in the action of the *Bond Buyer's* index of the yield in 20 municipal bonds.

When the Peg Was Dropped

For three days after the announcement of the conversion offer, the Federal Reserve maintained its bid of 100-22/32, in order, as it later said, to allow holders who had bought their bonds in expectation of continued support to sell them without loss. On March 8 the peg was dropped, but when, within the next few days, the market dropped to 100, the Federal Reserve bought bonds at that price in order to maintain an "orderly" market. In other words, the Federal Reserve was no longer committed to maintain a certain price level, but it did not intend to let the market drop too far too fast. On March 13 the Federal Reserve bid was lowered to 99-2/32 and it was maintained at that level through Friday, April 6, when the conversion offer expired. On Monday, April 9, when trading resumed after the weekend, the Federal Reserve bid was lowered to 98-30/32. By the close of the week Federal Reserve support seemed to have been withdrawn, at least temporarily, and the market for the Victory issue fell to 98-10/32 bid on April 12, with Government bond dealers taking a rather uncertain view of the future. Translated into terms of yield, which varies inversely with price, Victory 2½'s yielded 2.45% on March 4, 2.56% from March 13 to April 6, and about 2.61% on April 12.

Flexibility Recommended for Municipal Financing Plans

Compared with this rise of 16 basis points, the *Bond Buyer's* index, as we know, rose 35 basis points over roughly the same period. The rise in municipal bond yields was most pronounced immediately after the conversion offer was made—that is, when it was first made definite that interest rates on long-term Governments would be allowed to rise—and as the expiration of the conversion offer approached.

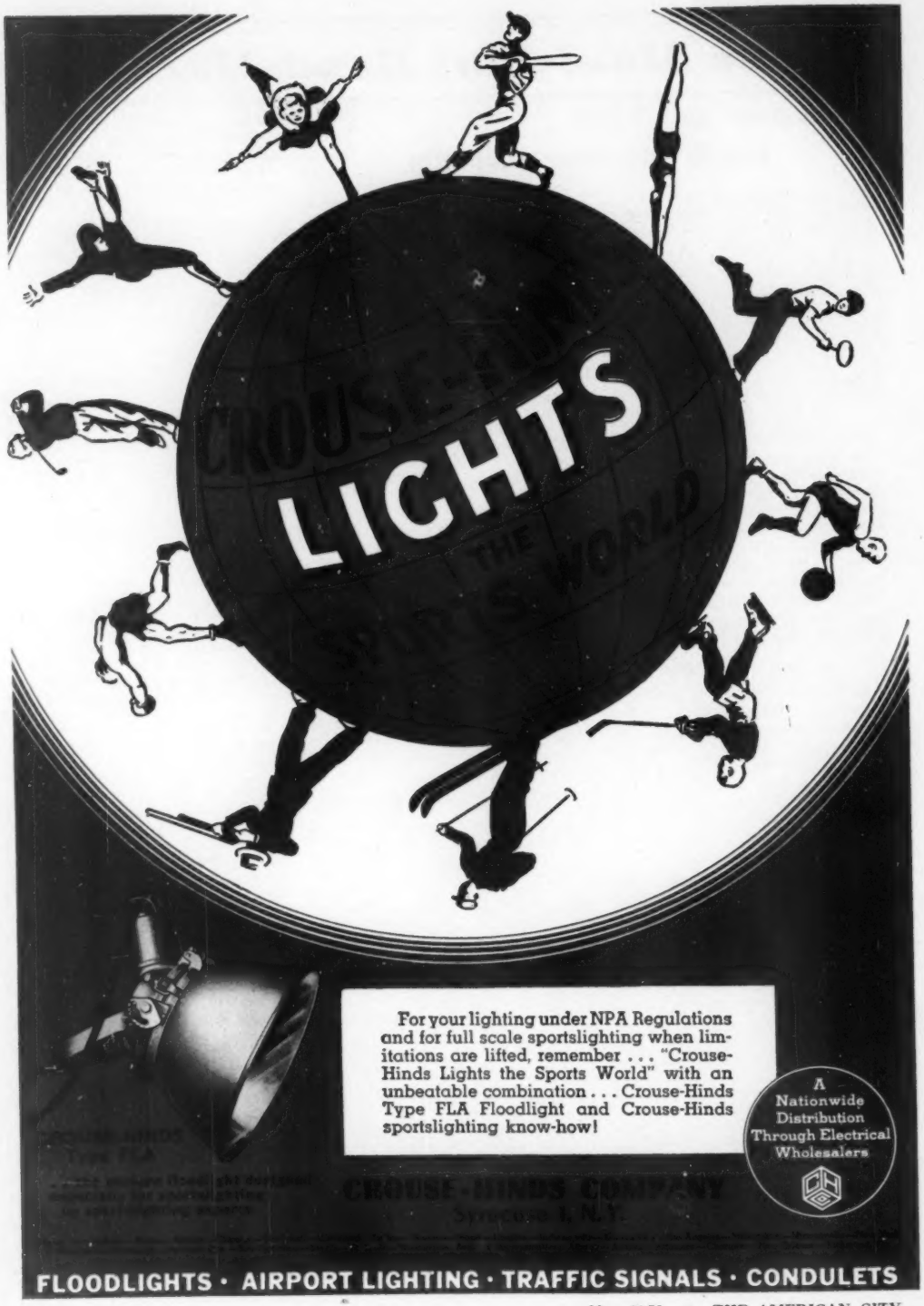
It would be helpful to conclude this discussion with a definite prediction as to the future course of the municipal market—a handy timetable for cities which plan to sell bonds. Unfortunately, it isn't that easy. In the first place, there is still considerable uncertainty in the Government bond market. That market has been supported so long that no one knows where its true level is. Neither does anyone know whether it will be allowed to seek its true level; the best guess is that the Federal Reserve will continue to support the market

(*Continued on page 159*)

Representative Municipal Bond Sales
April 1-10, 1951

Municipality	*Amount*	*Purpose*	*Average Maturity (Years)*	*Net Interest Cost Per Cent*
Burlington, Iowa	$ 425,000	Bridge revenue	11*	2.67
Flint School District, Mich.	5,500,000	School improv.	8*	1.6605
Memphis, Tenn.	4,550,000	Var. improv. ..	15	1.84865
City of Easton Authority, Pa.	1,700,000	Sewer revenue	22-3/4*	2.09115
Louisville, Ky.	3,500,000	Var. improv. ..	23	1.9437
Council Bluffs Ind. School District, Iowa..	875,000	School bldg. ..	10-5/6	1.60
Clinton County, N. Y.	500,000	County	2-1/2	1.487
Sweetwater Union High School Dist., Calif.	835,000	School bldg. ..	16	2.6374
Birmingham, Mich.	250,000	Water revenue	18-5/6	2.2262
Cleveland, Ohio	12,900,000	Var. improv. ..	10-1/3	1.8225

* Average computed to maturity; bonds partly callable before maturity.



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Conventions — When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

May 7-9—Chattanooga, Tenn.
AMERICAN PUBLIC POWER ASSOCIATION. Annual Convention (Read House). Gen. Mgr., Carlton L. Nau, 1757 K St., NW., Washington, 6, D. C.

May 7-11—Detroit, Mich.
NATIONAL FIRE PROTECTION ASSOCIATION. Annual Convention (Hotel Statler). Gen. Mgr., Percy Bugbee, 60 Batterymarch St., Boston 10, Mass.

May 8-11—Chicago, Ill.
AMERICAN INSTITUTE OF ARCHITECTS. Annual Convention (Hotel Edgewater Beach). Exec. Dir., Edmund R. Purves, 1741 New York Ave., NW., Washington 6, D. C.

May 13-18—Atlantic City, N. J.
NATIONAL CONFERENCE OF SOCIAL WORK. Annual Meeting (Hotel Traymore). Exec. Sec., Joe R. Hoffer, 22 W. Gay St., Columbus 15, Ohio.

***May 14-17—Ontario, Canada**
BUILDING OFFICIALS CONFERENCE OF AMERICA. Annual Convention (King Edward Hotel). Chairman, K. S. Gillies, Commissioner of Buildings, City Hall, Toronto 1, Canada.

May 16-20—Washington, D. C.
NATIONAL CONFERENCE ON CITIZENSHIP. Annual Conference (Hotel Statler). Dir., Carl B. Hyatt, Dept. of Justice, Washington, D. C.

May 17-18—Ocean City, Md.
MARYLAND-DELAWARE WATER AND SEWERAGE ASSOCIATION. Annual Convention (Hotel Commander). Sec.-Treas., W. McLean Bingley, 2411 N. Charles St., Baltimore 18, Md.

May 17-19—Vancouver, B. C.
AMERICAN WATER WORKS ASSOCIATION—Pacific Northwest Section. Annual Meeting. Sec., O. P. Newman, Boise Water Corp., Boise, Idaho.

May 21-23—St. Louis, Mo.
MISSOURI ASSOCIATION OF PUBLIC UTILITIES. Annual Convention (Jefferson Hotel). Sec., Hinkle Statler, Merchants Bank Bldg., 101 W. High St., Jefferson City, Mo.

May 21-23—Winnipeg, Man., Canada
AMERICAN WATER WORKS ASSOCIATION—Canadian Section. Annual Meeting (Royal Alexandra Hotel). Sec., A. E. Berry, Ontario Dept. of Health, Parliament Bldgs., Toronto 2, Ont.

May 22-25—Boston, Mass.
NATIONAL INSTITUTE OF MUNICIPAL CLERKS. Annual Conference (Copley Plaza Hotel). Pres., Arthur J. Shinners, Town Hall, Brookline, Mass.

May 24-26—Johnston, Pa.
EASTERN ASSOCIATION OF FIRE CHIEFS. Annual Convention (Hotel Stanwix). Sec., Charles E. Clark, Box 271, Wayne, Pa.

June 7-8—Springfield, Mass.
NEW ENGLAND SEWAGE WORKS ASSOCIATION and NEW YORK SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Fourth Joint Meeting (Hotel Kimball). Sec., (New England) Walter E. Merrill, 511A State House, Boston 33, Mass.; (New York) Ralph E. Sweeney, 21 N. Broadway, White Plains, N. Y.

June 8-9—Seattle, Wash.
ASSOCIATION OF WASHINGTON CITIES. Annual Convention (Olympic Hotel). Exec. Sec., Chester Biesen, 250 Smith Hall, University of Washington, Seattle 5, Wash.

June 11-13—London, Ontario, Can.
CANADIAN FEDERATION OF MAYORS AND MUNICIPALITIES. Annual Conference (Hotel Lincoln). Exec. Dir., George S. Mooney, Office 22, Mount Royal Hotel, Montreal, Quebec, Canada.

June 13-17—Mackinac Island, Mich.
NATIONAL ASSOCIATION OF TAX ADMINISTRATORS. Annual Convention (Grand Hotel). Exec. Sec., Charles F. Conlon, 1313 E. 60th St., Chicago 37, Ill.

June 14-16—Niagara Falls, N. Y.
NEW YORK STATE CONFERENCE OF MAYORS AND OTHER MUNICIPAL OFFICIALS. Annual Meeting (Hotel Niagara). Exec. Sec., Morgan Strong, 6 Elk St., Albany, N. Y.

June 14-16—Rochester, Minn.
LEAGUE OF MINNESOTA MUNICIPALITIES. Annual Convention (Municipal Auditorium). Exec. Sec., C. C. Ludwig, 15 University Library, Minneapolis 14, Minn.

***June 15—New York, N. Y.**
ASSOCIATION OF MUNICIPAL PUBLIC RELATIONS OFFICERS. Annual Conference (Hotel Roosevelt). Exec. Dir., Henry Davis Nadig, 341 Madison Ave., New York 17, N. Y.

***June 18-20—Washington, D. C.**
AMERICAN CONGRESS OF SURVEYING AND MAPPING. Annual Meeting (Hotel Shoreham). Address inquiries to Congress at P. O. Box 470, Benjamin Franklin Station, Washington 4, D. C.

***June 18-22—State College, Pa.**
FOURTH ANNUAL WATER WORKS SCHOOL OF PENNSYLVANIA STATE COLLEGE. Director, R. Rupert Kountz, School of Engineering, State College, Pa.

June 20-22—Columbus, Ohio
OHIO SEWAGE AND INDUSTRIAL WASTES TREATMENT CONFERENCE. Annual Convention (Neil House). Sec.-Treas., John E. Richards, 301 Ohio Depts. Bldg., Columbus, Ohio.

June 24-26—Philadelphia, Pa.
PENNSYLVANIA ASSOCIATION OF TOWNSHIP COMMISSIONERS. Annual Meeting (Bellevue-Stratford Hotel). Sec.-Treas., H. A. Fritschman, 2325 Darby Rd., Havertown, Pa.

June 25-27—Detroit, Mich.
MICHICAN ASSOCIATION OF CHIEFS OF POLICE. Annual Convention (Gratiot Inn). Exec. Sec., E. B. Wilson, Detroit Leland Hotel, Detroit 26, Mich.

***June 25-29—State College, Pa.**
FOURTH ANNUAL SEWAGE WORKS SCHOOL OF PENNSYLVANIA STATE COLLEGE. Director, R. Rupert Kountz, School of Engineering, State College, Pa.

***June 25-30—Brighton, England**
INTERNATIONAL UNION OF LOCAL AUTHORITIES. Annual Congress. Gen. Sec., N. Arkema, 5 Paleisstraat, The Hague, Netherlands.

June 29—Trenton, N. J.
AMERICAN WATER WORKS ASSOCIATION. New Jersey Section. Summer Meeting (Inspection of De Laval Steam Turbine Company Plant, and Luncheon). Sec., C. B. Tygert, Box 178, Newark 1, N. J.

June 28-30—Biloxi, Miss.
MISSISSIPPI MUNICIPAL ASSOCIATION. Annual Convention (Buena Vista Hotel). Mgr., George L. Sugg, Lampton Building Annex, P. O. Box 531, Jackson, Miss.

July 5-7—Milwaukee, Wis.
NATIONAL ASSOCIATION OF COUNTY OFFICIALS. Annual Convention (Hotel Schroeder). Sec.-Treas., Keith L. Seegmiller, 1616 Eye St., NW., Washington 6, D. C.

July 24-26—New York, N. Y.
NEW YORK STATE ASSOCIATION OF CHIEFS OF POLICE. Annual Convention (Hotel New Yorker). Exec. Sec., R. W. Morris, 328 State Tower Bldg., Syracuse, N. Y.

Aug. 14-17—Grand Rapids, Mich.
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Convention (Pantlind Hotel). Gen. Mgr., James E. Jagger, 22 E. 38th St., New York, N. Y.

***Aug. 20-22—State College, Pa.**
PENNSYLVANIA WATER WORKS OPERATORS' ASSOCIATION. Annual Convention (Temporary Union Bldg.). Sec.-Treas., R. Rupert Kountz, School of Engineering, State College, Pa.

Aug. 22-24—State College, Pa.
PENNSYLVANIA SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Conference (Pennsylvania State College). Sec.-Treas., Bernard S. Bush, Kirby Health Center, Wilkes-Barre, Pa.

***Aug. 27-30—Washington, D. C.**
ILLUMINATING ENGINEERING SOCIETY. National Technical Conference (Hotel Shoreham). Exec. Sec., A. D. Hinckley, 1860 Broadway, New York 23, N. Y.

***Aug. 27-31—Cincinnati, Ohio**
NATIONAL SHADE TREE CONFERENCE. Annual Convention (Netherland-Plaza Hotel). Sec.-Treas., L. C. Chadwick, Ohio State College, Columbus, Ohio.

***Sept. 5-7—Washington, D. C.**
GOVERNMENTAL RESEARCH ASSOCIATION. Annual Convention (Hotel Statler). Sec., Louis D. Brown, 30 Rockefeller Plaza, New York 20, N. Y.

Sept. 9-13—Poland Spring, Maine
INTERNATIONAL CITY MANAGERS' ASSOCIATION. Annual Conference. Dir., Clarence E. Ridley, 1313 E. 60th St., Chicago, Ill.

Sept. 12-14—Minneapolis, Minn.
AMERICAN WATER WORKS ASSOCIATION—Minnesota Section. Annual Conference (Hotel Nicollet). Sec.-Treas., Leonard N. Thompson, 216 Court House Bldg., St. Paul 2, Minn.

Sept. 16-19—Detroit, Mich.
AMERICAN PUBLIC WORKS ASSOCIATION. Annual Convention (Veterans Memorial Bldg.). Exec. Dir., D. F. Herrick, 1313 E. 60th St., Chicago 37, Ill.

***Sept. 19-21—St. Joseph, Mich.**
AMERICAN WATER WORKS ASSOCIATION—Michigan Section. Annual Convention (Whitcomb Hotel). Exec. Sec., T. L. Vander Velde, Dept. of Health, Lansing 4, Mich.

Sept. 23-26—New York, N. Y.
AMERICAN CHAMBER OF COMMERCE EXECUTIVES. Annual Conference (Hotel Commodore). Exec. Sec.-Treas., Miss Elizabeth Glenn, 1615 H St., NW., Washington, D. C.

***Sept. 24-25—Denver, Colo.**
AMERICAN WATER WORKS ASSOCIATION—Rocky Mountain Section. Annual Convention (Cosmopolitan Hotel). Exec. Sec., George J. Turre, Board of Water, Denver, Colo.

***Oct. 1-4—Cincinnati, Ohio**
AMERICAN TRANSIT ASSOCIATION. Annual Convention (Netheraind-Plaza Hotel). General Sec., Arthur W. Baker, 292 Madison Ave., New York 17, N. Y.

Oct. 3-5—Watertown, S. D.
SOUTH DAKOTA MUNICIPAL LEAGUE. Annual Convention. Sec., R. D. Falk, Law Bldg., University of South Dakota, Vermillion, S. D.

***Oct. 8-11—St. Louis, Mo.**
NATIONAL ASSOCIATION OF ASSESSING OFFICERS. Annual Convention (Hotel Statler). Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago 37, Ill.

Oct. 8-12—Chicago, Ill.
THIRTY-NINTH ANNUAL SAFETY CONGRESS AND EXPOSITION. Address inquiries to: Housing Bureau, 39th Nat'l Safety Congress, c/o Nat'l Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

(Continued on page 159)

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Conventions

(*Continued from page* 157)

***Oct. 10-11—Des Moines, Iowa**
LEAGUE OF IOWA MUNICIPALITIES. Annual Convention (Hotel Fort Des Moines). Exec. Sec.-Treas., Max A. Conrad, Burlington, Iowa.

***Oct. 14-17—Pittsburgh, Pa.**
AMERICAN SOCIETY OF PLANNING OFFICIALS. Annual Convention (Hotel William Penn). Exec. Dir., Walter H. Blucher, 1313 E. 60th St., Chicago 37, Ill.

***Oct. 21-24—Mineral Wells, Texas**
LEAGUE OF TEXAS MUNICIPALITIES. Annual Convention (Baker Hotel). Exec. Dir., E. E. McAdams, 108 E. 19th St., Austin 1, Texas.

***Oct. 21-24—Washington, D. C**
NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING. Annual Conference and Exhibit (Shoreham Hotel). Exec. Dir., Albert H. Hall, 730 Jackson Place, NW., Washington 6, D. C.

***Oct. 25-27—Atlantic City, N. J.**
AMERICAN WATER WORKS ASSOCIATION—New Jersey Section. Annual Fall Meeting (Hotel Madison). Sec., C. B. Tygert, Box 178, Newark, N. J.

***Oct. 28-31—Daytona Beach, Fla.**
FLORIDA SEWAGE AND INDUSTRIAL WASTES ASSOCIATION, jointly with the Florida Section of the AMERICAN WATER WORKS ASSOCIATION. Annual Fall Meeting (Princess Issena Hotel). Sec.-Treas., Perry M. Teeple, P. O. Box 210, Jacksonville 1, Fla.

***Nov. 26-29—Dallas, Texas**
NATIONAL TAX ASSOCIATION. Annual Convention (Hotel Adolphus). Sec., Ronald B. Welch, Box 1799, Sacramento, Calif.

Municipal Bond Market

(*Continued from page* 155)

at some level, if necessary, in the interests of "order" and to aid the Treasury in future financing. There is the further point that the threat of higher taxes, which is always a bullish factor in the market for tax-exempt bonds, has to some extent receded. Government income is running ahead of estimates and this fiscal year is likely to close with a surplus instead of the projected deficit. The Treasury has decided that it does not, at the present time, require quite as much in the way of additional taxes as it had earlier requested, and it is likely that Congress will postpone as long as possible voting even the reduced amount requested by the later consideration of the Treasury.

Necessity for Flexibility In Institute Planning

On the other hand, the supply of municipal bonds has fallen off somewhat, as states and cities have postponed or reduced borrowing because of the relatively unfavorable market, and scarcity may have a firming effect on prices. Furthermore, the fact that yields on municipals have risen much more than the yield on Governments would indicate that the municipal market has to some extent discounted further weakness in the Government bond market. What weight to give these various factors is hard to say, but any city would be well advised to introduce some flexibility into its financing plans to be considered in the near future.

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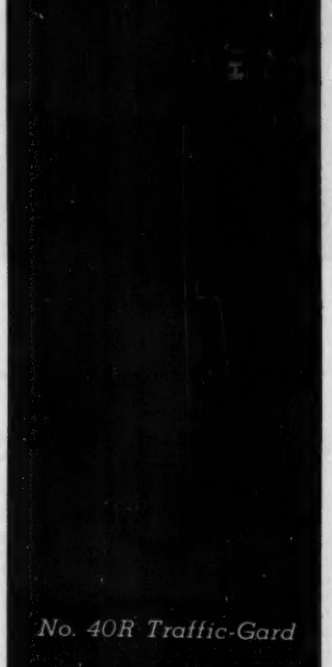

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Recent City Manager Appointments

The following portraits are of city managers whose appointments have been announced in preceding issues of *The American City*

G. S. Vergeer
Baker, Ore.

George Aiassa
Santa Paula, Calif.

George M. Minturn
Hanford, Calif.

Robert J. McNutt
Hazel Park, Mich.

George Matkin
Nephi, Utah

CORNELIUS BODINE, JR., has left the managership of Kissimmee, Fla., to become manager of Winter Park, Fla. He succeeds ARTHUR R. MILLER, JR., who has entered the armed services. The new manager of Kissimmee is E. J. PARKER, a former city commissioner.

HAROLD R. CHEEK has resigned as manager of Lexington, Ky., to become city manager of Niagara Falls, N. Y., effective May 1.

ARTHUR H. CURTIS is the new manager of Mount Desert, Maine, succeeding HARRY A. DILLON.

The first manager of Wilmington, Mass., is DEAN C. CUSHING, who left the managership of Derry, N. H., to take office in Wilmington on April 16.

H. G. FORRESTER, a certified public accountant, has succeeded C. A. DRAA as manager of Titusville, Fla.

St. Clair Shores, Mich., has appointed its first manager to take office on May 1. He is A. J. KOENIG, who has resigned as manager of Milford, Conn., to accept the position.

J. G. THORNE has retired from the managership of Maquoketa, Iowa, and has been succeeded by ORVILLE E. MEYER, formerly city clerk of Fort Madison, Iowa.

HAROLD C. MCCLINTOCK will leave the managership of Hutchinson, Kan., to become the first manager of Holland, Mich., effective May 15.

The new manager of Clearwater, Fla., is F. C. MIDDLETON, formerly city director of utilities. He succeeds BOYD A. BENNETT.

JAMES M. ORDWAY, formerly manager of Brownville, Maine, has moved to Wilton, Maine, as the town's first manager.

MRS. LOUISE TIMONEY DENICO has left the managership of Vassalboro, Maine, and has been succeeded by ELBERT M. PRINCE.

The former Dubuque County engineer, LAVERNE J. SCHILTZ, is the new city manager of Dubuque, Iowa. He succeeds A. A. RHOMBERG.

HOWARD J. SEARS, formerly manager of Hamilton County, Tenn., is the new manager for Charleston County, S. C. He fills the position vacated some time ago by E. R. Stallings.

M. DEANE SEEGER, administrative consultant for the Oregon League of Cities, has accepted an appointment as manager of Whittier, Calif. He will take office on June 1, succeeding WILLIAM HOWARD CHURCH.

The planning director of Coronado, Calif., GLENN WADE, is acting as city manager until a permanent manager is appointed to succeed H. R. FULLER.

The first city manager of Pocatello, Idaho, is WILLIAM B. WEBB, formerly manager of Marysville, Mich.

CLARENCE E. RIDLEY
Director
International City Managers' Association
Chicago, Ill.

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Newark Evening News

SPORTS FINAL

Hundreds Flee N. J. Flood

Passaic Area Is Hard Hit

Police and Firemen, Busy All Night on Rescue Work; Rivers Still Rise

Vast Damage Outside N. J.

Students' Deferment

Flood Slows Probe Of Murder Suicide

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Building Codes and Housing

New Report on Building Codes in the United States

A COMPREHENSIVE report on the status of building-regulation systems in the United States has just been issued by the Housing and Home Finance Agency.* In addition to establishing the national pattern of building regulations, the study will assist municipalities in appraising the present degree and nature of building regulation in communities of similar size as well as in near-by localities. Basically, the report consists of a series of large maps and tables which list places regulating building construction and which show the particular type of code in existence in each locality.

These are the report's major findings: 3,014 municipalities with populations of 2,500 or more issue building permits, and 1,833 of those with less than 2,500 population; counties and other governmental authorities issuing building permits total 635.

There are 2,233 municipalities with building codes. Specified categories of codes in effect are as follows:

Building Officials Conference of America Building Code (new)	36
National Board of Fire Underwriters–National Building Code	235
National Electrical Code	224
Pacific Coast Building Officials Conference Building Code	548
Southern Building Code Congress–Southern Standard Building Code	249
Suburban Building Officials Conference Code (Illinois-Indiana)	41
State Building Codes (of various types)	11

* "Building Regulation Systems in the United States," Division of Housing Research, Office of the Administrator, Housing and Home Finance Agency, Washington 25, D. C. February 1951. 121 pp.

Public Housing Promotes Home Ownership

LOW-RENT housing projects are proving a stepping-stone to home ownership for many of their residents.

Data gathered by the National Association of Housing Officials on where low-rent housing residents move upon leaving public projects indicates that a large number become home-owners. In Memphis, Tenn., for example, where one of the chief objectives of the city's housing authority has been the encouragement of tenants to become private home-owners, 116 housing-project families purchased their own homes last year. This group represents more than 17% of the 673 tenants that moved out and nearly 90% of the families that left the city's low-rent housing projects because their incomes passed the maximum level set by the city for occupancy. Since January 1944, when the Memphis Housing Authority began keeping records of tenants moving out to become home-owners, more than 600 have purchased homes of their own.

Among many other examples that might be cited, of the 334 over-income tenants that vacated Birmingham housing projects last year, 224 are known to have purchased homes just prior to leaving. In Macon, Ga., 30% of all tenants moving from housing projects during the past five years have become home-owners. More than 40%—185 of the 448—families moving out of Detroit's Herman Gardens during the six-month period between July 1 and December 31, 1950, bought their own homes.

"Low-rent housing projects are not intended to provide lifetime shelter for their tenants," the National Association of Housing Officials points out, "but are intended to serve as a means of rehabilitation for families forced to live in slums because of their economic plight. Tenants are encouraged through better environment to raise themselves in economic productivity and other standards. When a family's income exceeds the maximum level for residence, it is required to vacate the low-rent housing units."

Readers' Guide Celebrates Fiftieth Anniversary

THE AMERICAN CITY congratulates the H. W. Wilson Company, of New York, on the fact that with its issue of March 25, 1951, *The Reader's Guide to Periodical Literature* began its second half-century of existence.

Published semi-monthly from September to June, inclusive, and monthly in July and August, *The Readers' Guide* indexes the principal contents of 117 periodicals—THE AMERICAN CITY included. For convenient reference in libraries, annual and two-year bound cumulations are published.

A glance at the subject headings in the first cumulation discloses many changes in the American scene. Fifty years ago one went to the kinematograph and marveled over the mysteries of the wireless telephone and the flying machine. Churchill and Roosevelt were much in the news, only it was the American Winston Churchill, author of *The Crisis*, not the young British war correspondent. The Roosevelt was Theodore, the first President to ride in an automobile (1902). The machine was a Columbia electric victoria. In those days attention was almost equally divided between automobiles driven by alcohol, and electricity, gasoline, and steam, as is clearly indicated in the number of entries under these headings in the first *Reader's Guide* cumulation.

Housing Administrator Establishes Field Offices

RAYMOND M. FOLEY, Administrator of the Housing and Home Finance Agency, has announced that small staff offices are being established for eight regions to represent the Administrator on regional defense-mobilization committees under the Defense Production Administration, and to make locality surveys and recommendations regarding housing-credit relaxations in defense areas.

To carry out these new duties, the present field offices of the Community Facilities Services, already functioning as a part of the office of the HHFA Administrator, will be augmented by a special representative of the Administrator and staff specialists assigned from HHFA personnel.

Among the duties of the area staff will be development of housing survey and report data under procedures announced recently by the Defense Production Administration, to determine areas in which housing credit relaxations should be considered for in-migrant defense workers.

Region	*Office Address*	*Area Served*
I	New York 4, N. Y. Suite 437 42 Broadway	Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont
II	Philadelphia, Pa. Gimbel Bldg. 9th & Chestnut	Delaware, District of Columbia, Maryland, North Carolina, Pennsylvania, Virginia, West Virginia
III	Atlanta 3, Ga. 114 Marietta St.	Alabama, Florida, Georgia, Mississippi, South Carolina, Tennessee, Puerto Rico, Virgin Islands
IV	Chicago, Ill. Old Postoffice Bldg.	Illinois, Indiana, Kentucky, Michigan, Ohio, Wisconsin
V	Kansas City 6, Mo. Fidelity Bldg. 9th & Walnut	Iowa, Kansas, Minnesota, Missouri, Montana, Nebraska, New Mexico, North Dakota, South Dakota, Utah Wyoming
	Sub-office: Denver, Colo. New U. S. Customs House Bldg.	Colorado, New Mexico, Utah, Wyoming
VI	Fort Worth 2, Texas Texas & Pacific Bldg.	Arkansas, Louisiana, Oklahoma, Texas
VII	San Francisco, Calif. 180 New Montgomery	Arizona, California, Nevada, Hawaii
VIII	Seattle 4, Wash. New World Life Bldg.	Idaho, Oregon, Washington, Alaska

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These valves come closer to being trouble-*proof* than any you've ever run across. In the event of valve body distortion, the unique wedging feature *automatically* adjusts discs to seats for drop-tight closure. And to cinch prolonged, low-maintenance service, wear is *uniformly* distributed because the fully revolving discs take a *different seating position* at every closure!

It adds up to smooth, reliable operation, and greater service life with minimum attention. But why not get *all* the facts on how Darling valve features can work to your advantage?

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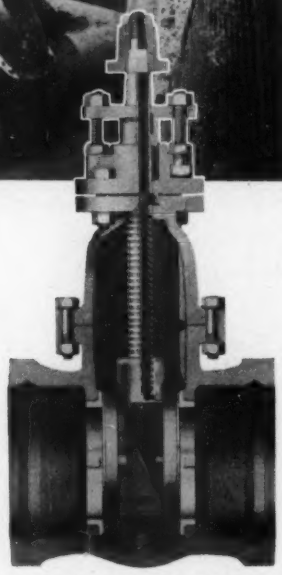

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State Planners Urge Short-Run and Long-Term Public-Works Policies

A TEN-POINT short-run program for local and state public works during the defense period was recommended to the Association of State Planning and Development Agencies by the Public Works Planning Committee at the Association's Sixth Annual Conference, in Miami Beach, April 15 to 18.

The Committee, headed by I. Alvin Pasarew, Director of the Maryland State Planning Commission, proposed two planning programs: one to cover the next one or two years, the other designed to meet the needs of the long-term defense program.*

Recommended Policies

The Committee suggested the following policies for developing the short-run program, as an aid to officials concerned with these current, pressing problems:

1. Complete the construction of all non-postponable projects which can be finished during the next two years; complete those projects which are subject to the construction restrictions of M-4 and on which physical construction was actually started before October 26, 1950, the effective date of the order. This construction program may involve revisions of plans, specifications, and cost estimates. . . .

2. Develop high standards of maintenance for all publicly owned utilities, buildings, roads, and functional units thereof, which should be vigorously enforced by top-level government officials. . . .

3. Urge government officials at the various levels to modernize all mechanical tools of their organizations; antiquated and worn machinery and equipment should be used as part payment for efficient replacement purchases. Early action will assure availability and delivery. . . .

4. Develop programs for greater and more efficient utilization of personnel, equipment, and utilities. . . .

5. Advocate the establishment of central procurement agencies and policies at state, county, and municipal government levels in order to achieve economy in purchasing, avoid duplication and overstocking, and to develop uniform standards for widely used items.

6. Impound all appropriations already granted to departments, bureaus, and divisions for current expenditures and approved capital improvements which cannot be used economically due to imposed defense limitations; and earmark such programs and operations for post-defense periods.

7. Establish machinery for reserving sites and locations for public-works projects which have been planned but the construction of which must be postponed, such as highways, schools, hospitals, etc. Such a reservation could be in the form of an earmarking of the site under police power, or actual acquisition where such is not possible. . . .

8. Alert agencies of state and local governments to the existence of federal grant-in-aid and loan programs. . . .

9. Advocate that the Federal Government provide community facilities to meet the needs resulting from the creation of new military establishments and defense industries, but insist that planning agencies be given a voice in the planning of such community expansions. . . .

10. Maintain tax rates at high levels, and where, for any reason, revenues exceed expenditures, establish reserves for future public-works programs. . . .

Sessions on industrial-development and mobilization problems, including several devoted to the difficulties of getting recognition of state and local problems in Washington; decentralization possibilities; need for a national water policy; public relations, and development programs in the Americas were among the other features of the conference.

New Officers

New officers of the organization, which is affiliated with the American Society of Planning Officials, at 1313 E. 60th St., Chicago 37, Ill., are: President, William O. Dobbins, Jr., Alabama State Planning Board; Vice-Presidents, Francis A. Pitkin, Pennsylvania State Planning Board, and Wayne C. Fletcher, Arkansas Resources and Development Commission; Secretary-Treasurer, Leslie Hill Prince, New York State Department of Commerce.

On the Board of Directors are: Donald H. Davenport, Deputy Commissioner, New York State Department of Commerce (the immediate past president); James W. Clark, Minnesota; Sidney A. Edwards, Connecticut; Edward Ellingwood, New Hampshire; J. T. Gawthrop, British Columbia; George Hubley, Kentucky; Walter E. Keyes, Florida; Raymond V. Long, Virginia; Teodoro Moscoso, Jr., Puerto Rico; Harold V. Miller, Tennessee; Blaine W. Osterling, Indiana; I. Alvin Pasarew, Maryland, and William M. Williams, Colorado.

* The full report may be obtained from the Association of State Planning and Development Agencies at 1313 E. 60th St., Chicago 37, Ill.

Over 58% Live in Places of 2,500 or More

TODAY, about 58.5% of the country's population resides in places with a population of 2,500 or more, compared with 39.7% fifty years ago and 15.3% a century ago. In 1950, there were 4,270 places in the United States in the list of 2,500 or more; in 1900, there were 1,737 such places; and in 1850, there were 236 such places.

Preliminary results of the 17th Decennial Census of the United States, announced by the Bureau of the Census, show that in 1950 the combined population of all places of 2,500 or more was 87,992,647.* The total population of the United States was 150,697,361.

The First Census of the United States in 1790 listed only 24 places of 2,500 or more, with a combined population of 201,655, or a little over 5% of the nation's total of 3,929,214 inhabitants.

Among the 4,270 places of 2,500 or more, there were 5 places of 1,000,000 or more inhabitants, 13 with between 500,000 and 1,000,000; 23 places with 250,000 to 500,000; 65 with 100,000 to 250,000; 125 with 50,000 to 100,000; 246 with 25,000 to 50,000; 780 with 10,000 to 25,000; 1,174 with 5,000 to 10,000, and 1,839 with 2,500 to 5,000 inhabitants.

* For a list of these 4,270 places and the preliminary population figures for each, see the 1951 *Municipal Index and Atlas*, starting on page 172.

Public Servants Week— June 4 to 8

THE fourth annual observance of Public Servants Week will be held this year, June 4-8, and is sponsored by the American Federation of State, County, and Municipal Employees, in cooperation with local officials, groups, and organizations. The purpose of Public Servants Week is to focus public attention on ways and means of providing more efficient service to the public by state, county, and municipal employees, and acquainting the public with the role of the public servant in government.

In the past, parades, open-house events, newspaper and radio publicity, equipment displays, and film showings on local government have highlighted the Public Servant Week observances throughout the country.

Further information about Public Servants Week and typical local activities may be obtained from the AFSC & ME at the Federation Building, Madison 1, Wis.

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Municipal and Civic Publications

No. Carolina Guidebooks For Law-Enforcing Officers

THE LAW OF SEARCH AND SEIZURE and THE LAW OF ARREST—*Two guidebooks for law-enforcing officers prepared by Ernest W. Machen, Jr., Assistant Director, Institute of Government, University of North Carolina, Chapel Hill, N. C. First two volumes in* Law and Administration, *a series.* 150 *pp.* $1.50 *each volume.*

Although primarily designed for the use of law-enforcing officers in North Carolina, these carefully prepared, concise volumes should be of interest in other states. In North Carolina these books are of direct use to all city, county, and state law-enforcing officers, lawyers, judges, and prosecuting attorneys in the courts. They are also of interest to citizens in dealing with the basic liberties guaranteed by the Bill of Rights. The next volume in the series on *Law and Administration*, published by the Institute of Government, will be *Property Tax Collection*.

Research Bureau Report

CITIZENS AT WORK—*Report of Citizens' Governmental Research Bureau,* 125 *E. Wells St., Milwaukee* 2, *Wis.* 1951. 20 *pp.*

An excellent little pamphlet on the work of a successful and active governmental research bureau, showing its value to municipal officials and to the community at large on local-government problems.

Report on Dwelling Standards

CONSTRUCTION AND EQUIPMENT OF THE HOME—*By the Committee on the Hygiene of Housing, American Public Health Association. Public Administration Service,* 1313 *E. 60th St., Chicago* 37, *Ill.* 1951. 77 *pp.* $2.50.

This is the third and last in a series of three volumes by the Committee on the Hygiene of Housing. The first two were: *Planning the Neighborhood* (1948) and *Planning the Home for Occupancy* (1950).

Chapter I of the present volume discusses the structural framework of the dwelling. Chapters II, III, and IV deal with the basic problems of heating and ventilation, illumination, and noise control. Chapter V takes up the subject of sanitation in the home. Chapters VI and VII treat, respectively, of the household equipment essential for good housekeeping and the problems of safety in the home.

Finally, Chapter VIII, the joint effort of a lawyer and an expert on building technology, deals with the general question of the development of legal and administrative standards for dwelling construction. It presents a helpful analysis of the principles of regulation in American municipal and administrative law.

Because of the great public interest now engendered in the improvement of local building codes, local officials would be wise to procure and take note of the recommendations and findings in this report.

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Los Angeles Redevelopment Study

REBUILDING A CITY, A STUDY OF REDEVELOPMENT PROBLEMS IN LOS ANGELES—*By Robert E. Alexander and Drayton S. Bryant. The Haynes Foundation, 2324 S. Figueroa St., Los Angeles 7, Calif.* 1951. 70 *pp.* $1.

This report makes an over-all analysis of redevelopment problems and progress, and applies the findings to Los Angeles and to a specific area, the Chavez Ravine area, in Los Angeles. The authors, both experienced in planning and housing affairs, recommend a minimum annual expenditure of $2,000,000 for the city as the basis for a redevelopment program. They urge that a sound plan should be developed for at least a 25-year program. They also recommend that the redevelopment program should include a fair and clearly stated policy regarding the housing of all families removed from project areas.

Their specific proposals for the Chavez Ravine area indicate that it is most favorable for redevelopment because it is large (372 acres), three-fourths of the land is now vacant, and it is protected by a park on two sides and freeways on the other two sides, so that a permanent, desirable residential neighborhood can be created.

State-City Highway Administration

EFFECTIVE ADMINISTRATION IN STATE-CITY HIGHWAY ACTIVITY—*By Norman Hebden. Yale Bureau of Highway Traffic, New Haven, Conn.* 1951. 107 pp. $2.

More than two years were spent in the preparation of this report, which points out that today administration is the core of the problem of highway engineering. The author urges highway engineers to devote more attention to administrative matters.

The author sets forth Criteria of Sound Administration for Highways and a Recommended Policy on State-City Relationships. With regard to the basic elements of a sound policy, uniformly executed, the author concludes that the state-wide highway problems in each state should be analyzed and a long-range development plan prepared; uniform standards should be established; legal sanctions should be reviewed to assure clear definition and assignment of responsibility and authority; highway systems should be reclassified; state and city highway organizations should be revamped; sound programming should be initiated, and cooperative working procedures covering operations should be inaugurated.

Traffic Signal Controller Standards

TRAFFIC-ACTUATED TRAFFIC SIGNAL CONTROLLERS AND DETECTORS—*Institute of Traffic Engineers, Strathcona Hall, New Haven 11, Conn. Technical Report No. 3. 24pp. 50 cents.*

This is a third of a series of traffic-signal controller standards to be approved by the American Standards Association. The standards contain specifications for uniform automatic traffic controllers and detectors used at intersections and along busy highways all over the country. Through use of these standard specifications, anyone driving across the country would find the same signals in use no matter where he stopped. Provisions for both pedestrian and vehicular control devices are included.

Community Development Brochure

START NOW—A COMMUNITY DEVELOPMENT PROGRAM TO MAKE YOUR TOWN AND COUNTY MORE PROSPEROUS—*Published by the Industrial Development Committee of the Kentucky Chamber of Commerce, 317 Fincastle Bldg., Louisville 2, Ky.* 1951. 32 *pp.*

This brochure, in telling the story of London, Laurel County, Ky., and of the great progress made there in community betterment, through civic cooperation and sound planning, offers a practical yardstick for determining what any community has, what it needs, and how it should plan for the future. There is a sample check list to aid in determining needs, for example, and an outlined program to follow in attaining these goals.

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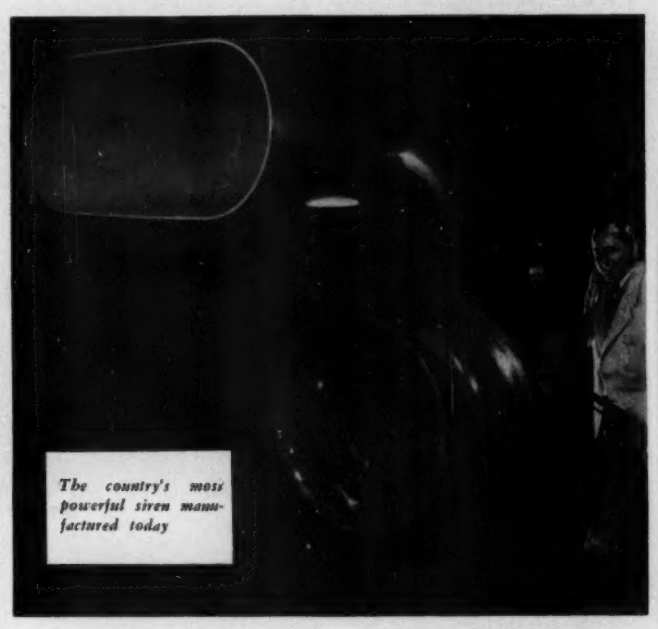
The Milwaukee Journal of April 16, 1951



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Michigan Municipal Wage Data

SALARY AND WAGE DATA, MICHIGAN CITIES AND VILLAGES OVER 4,000 POPULATION, 1950-1951—*Michigan Municipal League, 205 S. State St., Ann Arbor, Mich. Information Bulletin No. 65, March* 1951. *Mimeo.* 96 *pp.* $3.

Compiled by the Michigan Municipal Personnel Service from data gathered in February 1951, this report includes information on such questions as holiday-pay policy, overtime-pay policy, and the average number of hours in a standard work week, in addition to basic data on rates of pay. The report shows that municipalities are still granting general pay increases, and that many municipalities have granted two or more increases in the current fiscal year.

Ohio Highway Report

AN ENGINEERING STUDY OF OHIO'S HIGHWAYS, ROADS AND STREETS—*Report prepared for the Ohio Program Commission and the Highway Study Committee, 40 S. Third St., Columbus 15, Ohio. March* 15, 1951. 132 *pp. Summary booklet available,* 30 *pp.*

Prepared under the auspices of the Automotive Safety Foundation in cooperation with many Ohio agencies, this is the most comprehensive study and report of any state's highway and street needs yet to be published.

The recommendations and conclusions will be found particularly thoughtful, and many of them are applicable in other states. Much attention has been given to the intergovernmental relationships, to how the recommended program can be coordinated and administered, to county and township organization, and to municipal organization. A substantial section is devoted to roadside control and to land acquisition and control of access.

Though somewhat bulky, the basic report itself is readable and well-designed. All pertinent conclusions are summarized in a separate handy-size booklet, for easy reference. All in all, the report represents a landmark in public efforts to analyze and set forth remedial measures to cope with the mounting stream of vehicular traffic.

Housing Discrimination In Ten Cities

DISCRIMINATION IN HOUSING IN THESE 10 CITIES—*Published by Public Affairs Committee, Inc., 22 E. 38 St., New York* 16, *N. Y.* 1951. 30 *pp.* 30 *cents.*

This illustrated, 8½-by-11-inch booklet contains case reports and descriptions of discriminatory practices in 10 cities: Charlottesville, Sledge, Phoenix, Los Angeles, Denver, Springfield, Chicago, Detroit, Waterbury, and New York. The cities were picked for importance, size, location, and special interest. Washington was omitted because its story has been fully told in the pamphlet, *Segregation in the Nation's Capital,* by Kenesaw M. Landis.

The report concludes with the observation that "Planning in every city must be extended from city hall to the neighborhood level if racial tension and urban blight are to be eradicated. Planning commissions must be given two things that most of them lack: money and power. With those tools they can produce sensible master plans." The report also urges that redevelopment be planned on a democratic, non-political basis, with local and federal governments accepting full responsibility for relocating all displaced families without segregation.

Public Library Administration

PUBLIC LIBRARY MANAGEMENT, THIRD INSTITUTE 1951—*Bureau of Government, University Extension Division, University of Wisconsin, Madison* 6, *Wis.* 1951. 46 *pp.*

This report presents the proceedings of the Third Institute on Public Library Management. The purpose of these institutes is to provide relevant readings and references, to provide speakers equipped to highlight common problems, and to interchange ideas on library problems. The contents of the report will be of general value to all interested in library administration.

Building Regulations In Indiana

BUILDING REGULATIONS IN INDIANA, A STUDY OF PUBLIC RULE MAKING BY PRIVATE SPECIALISTS—*By John E. Stoner, Bureau of Government Research, Department of Government, Indiana University. Bloomington, Ind.* 1951. 112 *pp.* $1.25.

If government is to fulfill its function of facilitating man's mastery of his environment, ways must be found in any area of developing technology to find the facts, to make reasonable regulations, and to keep them up to date. How this has been done with regard to building regulations in Indiana is the subject of this monograph. The author discusses the 25-year-old experience of the Indiana Administrative Building Council, through which persons with highly technical information are brought together with public officials for the purpose of making rules, issuing orders, and supervising the administration of the rules.

Assessment Administration

PROCEEDINGS—1950 TRAINING COURSE FOR MUNICIPAL ASSESSORS—*Sponsored by the Assessors' Section of the League of Wisconsin Municipalities, 30 E. Johnson St., Madison* 3, *Wis.* 1951. 147 *pp.*

ASSESSMENT ADMINISTRATION, 1950 — *Papers presented at the Sixteenth International Conference on Assessment Administration, National Association of Assessing Officers, 1313 E. 60th St., Chicago* 37, *Ill.* 214 *pp.* $5.

The papers in these two excellent reports of proceedings present a great deal of new and up-to-date information that every assessor will want to have when struggling with the complex problems of assessment administration in an inflationary economy. In addition to news on techniques more commonly employed by assessors, there is a chapter in each volume on public relations for assessing officers.

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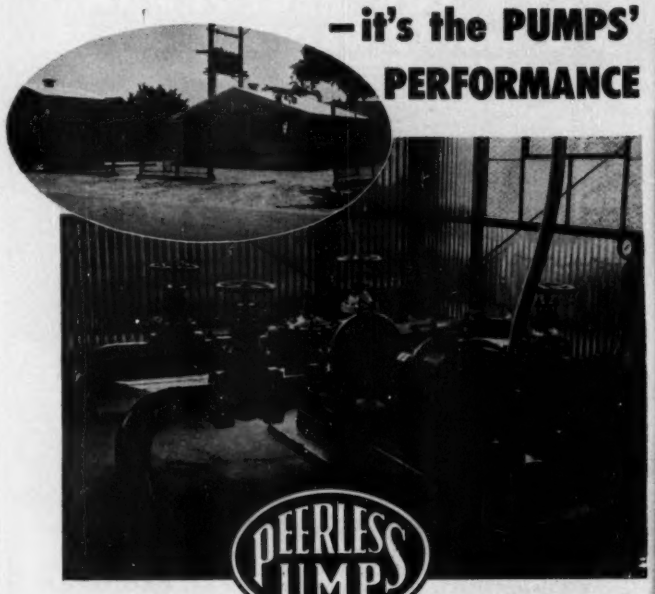

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Public Relations For Planning

THE CASE OF COMMUNITY "X"—AND HOW COMMUNITIES FROM "A" TO "Z" CAN AVOID THE PAINS AND DISCOMFORTS RESULTING FROM GROWTH SPASMS AND DEVELOPMENT PROBLEMS —*New Jersey Department of Conservation and Economic Development, Planning Section, Trenton, N. J. March* 1951. 10 *pp.*

This is a well-written report describing the difficulties and unpleasantness encountered by Community "X" in its efforts to adopt a zoning ordinance. The booklet makes specific recommendations for how such difficulties could have been avoided had Community "X" used some of the elementary principles of public relations in working out its planning and zoning program. Lists of references and helpful material are included, so that other communities need not make the same mistakes.

Town Planning Review

THE TOWN PLANNING REVIEW, *January* 1951—*Edited at the Department of Civic Design, Liverpool School of Architecture, University of Liverpool, England.* 100 *pp. Single copies available from* THE AMERICAN CITY, 470 *Fourth Ave., New York* 16, *N. Y.* $1.10.

Two especially worthwhile, handsomely illustrated articles in this issue will be of general interest to American planners. These are: "A Hospital Plans," by Reginald R. Isaacs, a 38-page comprehensive analysis of the program of the Michael Reese Hospital Planning Project in South Side Chicago, with an introduction by Walter H. Blucher; and "Planning and Development of Letchworth Garden City," by Sir Edgar Bonham-Carter, who was for many years a member of the Board of First Garden City, Ltd. The *Town Planning Review*, which has an international board of editors, is one of the leading planning journals published in the English language.

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Employee Public-Relations Handbook

OUR CIVIC STAFF AND PUBLIC RELATIONS—*By Wilfred A. Greene, Comptroller-Treasurer, City Hall, New Westminster, B. C.* 1951. 20 *pp.*

Published for the use of municipal employees in New Westminster, B. C., Canada, this little booklet is full of practical public-relations tips designed to improve service to the citizens. The booklet points out that public good-will is one of the city's most important assets. This handbook of "Company Manners" should help win many friends for New Westminster's local government.

River Basin Studies

TEN RIVERS IN AMERICA'S FUTURE, *Vol. II—The Report of the President's Water Resources Policy Commission, 718 Eighteenth St., NW., Washington 25, D. C.* 1951. *Illus.* 801 *pp. For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.*

SUMMARY OF RECOMMENDATIONS, 18 *pp. Available from Superintendent of Documents.* 15 *cents.*

The ten river basins covered in this report are the Columbia, Central Valley of California, Missouri, Colorado, Rio Grande, Connecticut, Alabama-Coosa, Potomac, Ohio, and Tennessee. For each river studied there are six chapters in the report. The chapter headings describe the elements discussed for each river: Regional Character and Problems; The River and Its Tributaries; Water Development Needs, Opportunities, and Programs; Economics and Financing of Projects; Policy Problems and Their Relations to Plans for Development, and Elements of a Plan for Full Development. Each of the basin studies is also being published separately, so that municipal officials and others interested in the particular problems of an area can have these studies available for convenient reference.

Handbook on New Federal Agencies

HANDBOOK, EMERGENCY DEFENSE ACTIVITIES — *Prepared by Federal Register Division, National Archives and Records Service, General Services Administration, Washington 25, D. C. March* 1951. 92 *pp. For sale by Superintendent of Documents, Government Printing Office, Washington 25, D. C.* 25 *cents.*

This handbook, which will appear quarterly, is a much-needed guide to federal agencies, all or part of whose functions are devoted to mobilization or to other related phases of the defense program. It includes brief organizational outlines and the name, addresses, and telephone numbers of officials of emergency defense agencies and their field offices, the Department of Defense, and the United States Coast Guard.

Included for ready reference are a subject index, a name index, a list of commonly used abbreviations for government agencies, and a separate list of officials from whom information may be obtained concerning additional federal agencies.

New Planning Review

COMMUNITY PLANNING REVIEW, *Vol.* I, *No.* 1.—*Published by Community Planning Association of Canada, Room* 103, 309 *Somerset St., West, Ottawa, Canada. February* 1951. *Subscription,* $2 *for four issues.*

This new bibliographical quarterly contains illustrated articles by recognized authorities, of the kind that appeared from time to time in its predecessors: *Layout for Living* and *Urbanisme*. The *Review* is edited by a staff of the Community Planning Association under the general direction of its Council. The first issue contains the following articles: "Ajax: Planning a New Town in Ontario," by Kent Barker; "The Decision Makers in Residential Building," by Nathan Keyfitz; "Urban Mapping: An Elementary Manual," by Humphrey Carver, and "Economic Problems of Urban Redevelopment," by Leonard Gertler.

Planning and Housing Readings

CITY PLANNING, A SELECTION OF READINGS IN ITS THEORY AND PRACTICE—*Prepared by the faculty of the interdepartmental course in city planning at the University of Minnesota. Burgess Publishing Co., 426 S. Sixth St., Minneapolis 15, Minn.* 1950. 225 pp. $3.75.

Reading these various papers is like taking a general, over-all course in city planning and housing. Among the authorities whose writings have contributed to this collection are: Lewis Mumford (The Non-Plan of the Non-City), Catherine Bauer (Good Neighborhoods), Robert Averill Walker (The History of Modern City Planning), Edith Elmer Wood (Some Housing Facts and Principles), Roland S. Vaile (Rent and Economic Policy), Russell Van Nest Black and Mary Hedges Black (Planning for the Small American City), and Reginald R. Isaacs (Educational, Cultural and Recreational Services). A summary of the Housing Act of 1949, copies of Tennessee Planning Legislation, and the Minneapolis Housing and Redevelopment Authority's Hi-Lo Development Plan are also included.

A Guide to Community School Study

DO CITIZENS AND EDUCATION MIX?—THE CONNECTICUT REPORT—*Published by the Governor's Fact-Finding Commission on Education, State Capitol, Hartford, Conn.* 1951. 159pp.

The story of "Brookhaven" herewith presented is a composite of the stories of 85 Connecticut communities as they have been reported to the Governor's Fact-Finding Commission on Education. The Commission, which was formed to find out what the people of the state wanted from their system of education, acted as a guidance and liaison center for any Connecticut community that wished the Commission's services in organizing and developing a school-community study group. From the data submitted, certain trends, as well as deviations, were soon discovered which have made possible the report on this composite town. This booklet should be of value to any community which wishes to set up similar study groups. It shows how to start the study, the purposes to be attained, the questions to be studied, sources of information, sample findings, and recommendations.

Civil-Defense Publications

The following reports should prove valuable to local officials charged with planning for civil defense. They attempt to portray realistically what municipal organizational can do and should do in the event of atomic attack.

CHICAGO ALERTS, A CITY PLANS ITS CIVIL DEFENSE AGAINST ATOMIC ATTACK—*Published by the Chicago Civil Defense Corps, 140 S. Dearborn St., Chicago, Ill. Report on a hypothetical atomic-attack-problem exercise held September 25-29, 1950. 266 pp.*

CRITIQUE OF CIVIL-DEFENSE EXERCISE, OAHU DISASTER RELIEF AGENCY, HONOLULU, T. H., *held October 29-31, 1950. Mimeo. 116 pp.*

GENERAL OUTLINE, CIVIL-DEFENSE PLAN FOR THE CITY AND COUNTY OF PHILADELPHIA — *Published by Philadelphia County Civil Defense Council, Philadelphia, Pa. February 13, 1951.*

CURRENT STATUS AND FUTURE PLANS OF THE CIVIL DEFENSE PROGRAM—*By Charles S. Rhyne. National Institute of Municipal Law Officers, 730 Jackson Place, NW., Washington 6, D.C. January 25, 1951. 20 pp.*

PLANT PROTECTION GUIDE FOR PHILADELPHIA—*By Plant Protection Section, Security Division, Philadelphia County Civil Defense Council. Samuel H. Rosenberg, Chairman. October 26, 1950. 8 pp.*

THE THREAT OF RED SABOTAGE — *By Fendall Yerxa and Ogden R. Reid. Reprinted from the* New York Herald Tribune, *230 W. 41st St., New York, N. Y. March 1951. 3rd printing. 25 cents.*

WHAT TO DO IF A-BOMBS FALL—*Entire magazine section of the Philadelphia* Inquirer *for February 11, 1951. 56 pp. Excellent public-education document.*

BIBLIOGRAPHY OF PUBLICATIONS ON CIVIL DEFENSE AND FILM LIST OF 25 16 MM. SOUND FILMS ON CIVIL DEFENSE—*Available without charge from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. The British experience on civil defense; much is still timely and applicable.*

CIVIL DEFENSE NEWS—*Published at 4238 LaSalle Ave., Los Angeles 62, Calif. A new bi-weekly newsletter with summary of ideas and developments on civil-defense matters. Sample copies available on request.*

WHAT EVERYONE SHOULD KNOW ABOUT ATOMIC WEAPONS—*By Arthur Van Dyck. Department of Information, Radio Corporation of America, 30 Rockefeller Plaza, New York 20, N. Y. Jan. 1951. 35 pp.*

Planning and Housing Reports

BEAVER FALLS, PA.—Beaver Falls City Plan. City Planning Commission, Beaver Falls, Pa. Illus. 22 pp.

BERKELEY, CALIF.—Berkeley Takes Inventory: Parking Supply and Demand. City Planning Commission and Dept. of Public Works, Berkeley, Calif. Feb. 1951. Mimeo. Illus. Tables.

CLINTON, TENN. — Capital Budget. Librarian, Tennessee State Planning Commission, 417 Seventh Ave. N., Nashville 3, Tenn. Feb. 1951. Mimeo. Tables. 39 pp. 50 cents.

HARTFORD, CONN. — Eleventh Annual Report. Housing Authority, 246 Asylum Ave., Hartford, Conn. Illus. Maps. Tables. 24 pp.

LOS ANGELES, CALIF.—Annual Report. Regional Planning Commission, 108 W. Second St., Los Angeles 12, Calif. Tables. Maps. 54 pp.

——Report on the Feasibility of Redeveloping the Bunker Hill Area. Community Redevelopment Agency, Los Angeles, Calif. Illus. Maps. Tables. 54 pp.

MARYLAND — Economic County Data Book for Maryland. Maryland State Planning Com-

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NORFOLK, VA.—Major Highway Plan. Part I. June 1950. 63 pp.

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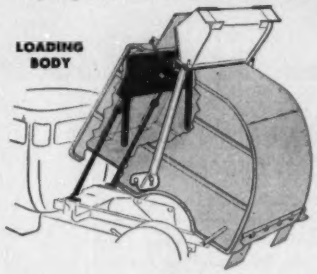

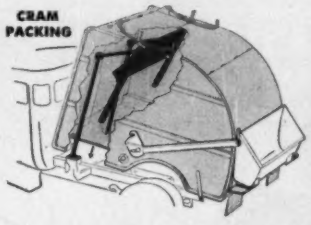

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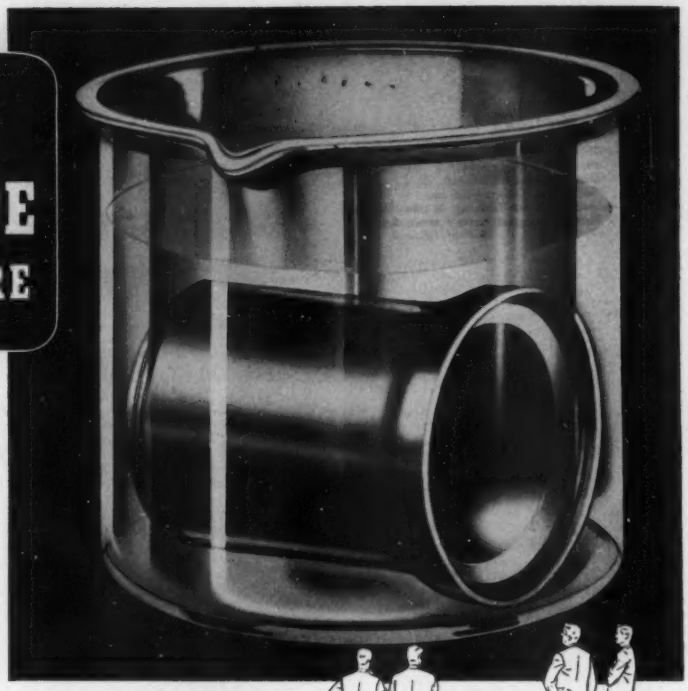

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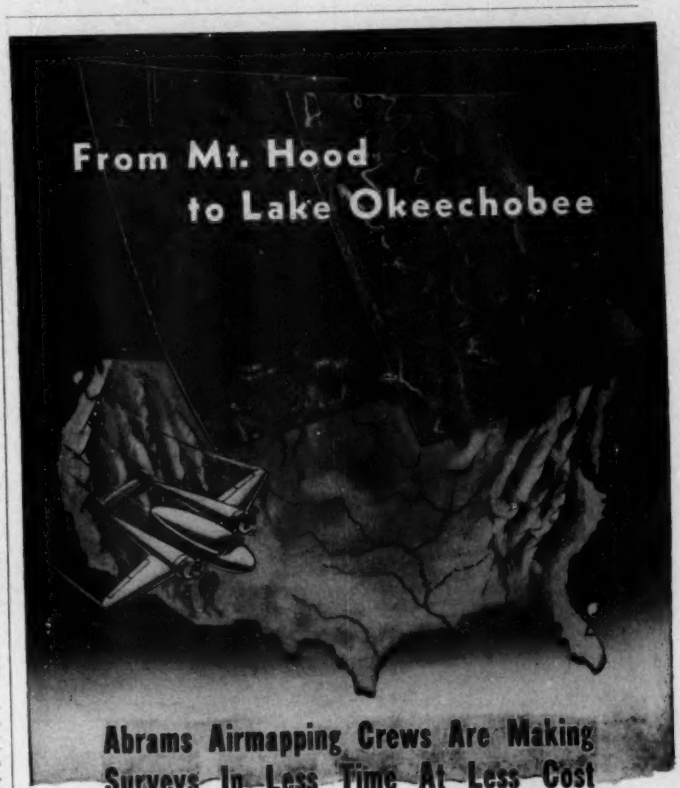

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(*Continued from page 81*)

radiation hazards from both air and water atomic bombs. Excellent for indoctrination of CD personnel.

AN INTRODUCTION TO RADIATION DETECTION INSTRUMENTS. 1951. 20 min. For loan to special groups* at Army Film Libraries as MISC 7773. Made for the Armed Forces Special Weapons Project, this shows the range of radiation detection instruments available late in 1950, contains doctrine from the eminently reliable source of AFSWP. Excellent for showing to radiation-detection personnel.

FIRST AID IN THE PREVENTION OF SHOCK. 1950. 26 min. For loan from Army Film Libraries as TF 8-1659. Produced by the Signal Corps, this first-aid film deals with several types of wounds, including burns, fractures, head and body injuries; shows how shock may develop from each and how to prevent it. Excellent for CD personnel of all types.

INCENDIARY BOMBS. In two parts, total 33 min. 1949. For loan from Army Film Libraries as Part I—TF 3-1561, and Part II—TF 3-1562. Produced by the Signal Corps, this film fully illustrates the several types of fire bombs used today, including the anti-personnel explosive types, from the 4-pound to the 1,000-pound, shows what kind of damage they do. Part II includes an important section showing how a city is analyzed as to fire-bomb vulnerability, affords CD a fine concept as regards what kind of incendiary bombs to expect for any given fire-bomb target.

A NEW FIRE BOMB. 1943. 9 min. For loan from the film libraries of the British Information Service. Made by the British Government as a CD-training film, this picture shows how to fight the small incendiary bombs, including the explosive, anti-personnel kind. Techniques used in 1943 are substantially the same as those which are advised today.

DEBRIS TUNNELING. 1943. 17 min. For loan from the film libraries of the British Information Service. Made for British CD training, this film shows a light rescue team building a tunnel under a pile of debris from a demolished house. Technique is well illustrated, is substantially the same as that recommended today.

CONTROL ROOM. 1944. 23 min. For loan from the film libraries of the British Information Service. Made for CD training in England, this film is one of the best to show how CD operates under battle conditions. Using the control room as the center situation, the picture gives flash-backs to the scene of several "incidents," shows how the several heads of CD services work together in restoring the bombed-out utilities. Excellent for indoctrination of CD personnel of all types.

ORDINARY PEOPLE. 1944. 28 min. For loan from the film libraries of the British Information Service. Another official CD film, this one is perhaps the most human. It shows the feelings and attitudes of several kinds of people: a judge, a cab-driver, a factory worker, a mother and daughter, who have just been bombed out. Excellent to show all CD personnel as a morale builder as well as for indoctrination.

IF IT HAPPENS HERE. 1944. 44 min. Procurable from the Bethlehem Steel Co., Bethlehem, Pa. This film was made by Caravel Films, New York City, to illustrate plant protection; shows how fire, rescue and first-aid teams go through a drill, also features operation of a central-control room. Although techniques for plant protection today call for several changes in detail, the over-all pattern shown in this film is worth study.

EVERYBODY'S BUSINESS. 1950. 29 min. Color. For loan to special groups from Army Film Libraries as MISC 7752. This film, made by the Signal Corps, makes the point that CD is everybody's business, contains much material of a non-medical nature that was in "Medical Effects of the Atomic Bomb." Excellent for all types of CD personnel as an indoctrination film.

* Films "for special groups" may or may not be restricted against showing to CD personnel. Directives from army GHQ can come at any time taking such films off a restricted list; hence, if the film libraries cannot release them now for general public screening, try again later. They may be available in a week or two, or perhaps by the time this issue reaches you.

EDITOR'S NOTE:

There are 80 army film libraries in the U.S.A. To locate the one nearest you, apply to one of the seven central film libraries of the following army areas, addressing your inquiry Attention Central Film Library, care of Army Headquarters, as follows:

First Army, Governor's Island, New York 4, N. Y.
Second Army, Fort George G. Meade, Md.
Third Army, Fort McPherson, Ga.
Fourth Army, Fort Sam Houston, Texas
Fifth Army, Fort Sheridan, Ill.
Sixth Army, Presidio, San Francisco, Calif.
Military District, Washington, D. C., Room 1543, Bldg. T7, Garvely Pt., Washington 25.

Films available from the British Information Services can be borrowed at the following eight offices:

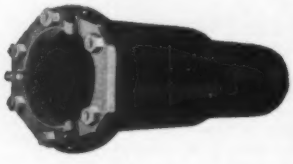
British Information Services—
New York, N. Y.; San Francisco, Calif.; Chicago, Ill.
British Consulate General—
Detroit, Mich.; Houston, Texas; Los Angeles, Calif.; Seattle, Wash.
British Embassy, Washington, D. C.

M & H Mechanical Joint
IBBM AWWA Gate Valve

Purchase price (or first cost) of a valve is not its real cost. Maintenance engineers appraise the true cost of a valve as cost per year of service—i.e., purchase price plus maintenance costs divided by years in operation.

On that basis, M & H Valves are designed to last longer and entail little or no maintenance cost. Sizes 2 to 30-inch, with all end connections, including Mechanical Joint as shown.

Installing M & H Mechanical-Joint Valves into an existing pipe line is easily and quickly done by common labor with Mechanical Joint Cutting-In Sleeves. The job of regular inspection and maintenance of fire hydrants is also greatly simplified if auxiliary valves are installed for each hydrant, and an M & H Mechanical-Joint Valve makes such a job an easy one.



MECHANICAL JOINT
CUTTING-IN SLEEVE

M & H VALVE
AND FITTINGS COMPANY
ANNISTON, ALABAMA

M&H PRODUCTS Everywhere

THE ANNUAL INDEX

listing by subjects and by cities the articles and items published in *The American City* for the 12 issues for 1950 is available without charge to subscribers for the magazine. Address requests to 470 Fourth Ave., New York 16, N. Y.

Catalogs for You

(Continued from page 34)

Write directly to the manufacturers, or use coupon on page 23

Post Card Billing

479 The convenience of well-planned mechanized post-card utility billing is increasingly sought. Radford, Va., is doing it successfully for water, electric, sewer, and refuse charges. Write for particulars on post-card utility billing as advertised by Underwood Corp., 1 Park Ave., New York 16, N. Y.

Water Sprinkler Gives Uniform Coverage

480 The Shower-Queen, a scientifically designed water sprinkler, gives uniform coverage to lawns and other areas requiring water. It can deliver water to the amount of 300 gpm and its maximum coverage in a rectangular pattern is 3,250 square feet. For full details on the Shower-Queen, suitable for golf clubs, parks, and homes, and the adapter which permits use with overhead and portable pipe irrigation systems, write to Acme Sprinklers, 412 Walbridge St., Kalamazoo 3, Mich.

Aerial Surveys, Maps

481 *Air Speeds to Your Map Needs* is the title of a booklet issued by Jack Ammann, photogrammetric engineers of San Antonio, Texas, and Manhasset, N. Y. Among the subjects discussed are photogrammetry for planning and record, for geology, engineering and location, industry and business, as well as topographic maps and aerial mosaics.

This Fluorescent Floodlight is Portable

482 Civil defense, fire, and police officials will be interested in Totelite, the portable fluorescent floodlight which operates on a self-contained or heavy-duty external batteries. The new 4-way Totelite eliminates fire hazards caused by candles and kerosene, or gasoline lights when electric power is unavailable. It is a full flooding light that illuminates an area at 180°. For further information, write to Paramount Industries, Inc., 111 Broadway, New York 6, N. Y.

Water Meters

483 Manufactured by Worthington-Gamon Meter Division of the Worthington Pump and Machinery Corp., 296 South St., Newark 5, N. J., Watch Dog disc water meters are furnished with a patented leak-proof device as well as the standard stuffing-box construction to eliminate leakage. The regular split-case model is available in sizes ⅝, ¾, and 1 inch. It has open or enclosed gear trains, and circular or straight reading registers. Write for Bulletin M-975-B40.

Gasoline Siren Tested During "Power Failure"

484 One of the features of a practice air-raid test at Sault Ste. Marie, Mich., on April 16th was a "power failure." As the town's siren is gasoline-driven, it went right on blaring when wanted. For a description of this powerful Mobil-Directo siren specifically for civil defense, write Biersach & Niedermeyer Co., 1937 N. Hubbard St., Milwaukee, Wis.

For Street Sweeping

485 Tarco welded car carriers have roller bearings, full swiveling caster wheels, safety warning flag. A product of the Tarrant Mfg. Co., East Ave., Saratoga Springs, N. Y., these carriers for street sweeping are available with pneumatic, solid rubber, or plain steel tiring.

Pipe-Cutting Machine

486 A fast, portable, pipe-cutting machine that will take all sizes of cast iron and steel pipe from 10 inches in diameter and up is manufactured by The E. H. Wachs Co., 1525 N. Dayton St., Chicago 22, Ill. The company claims its equipment serves and saves on regular construction and replacement programs, and is of vital aid in case of bombing.

HELLIGE
SWIMMING POOL
TWIN-KIT

FOR ACCURATE pH AND CHLORINE OR BROMINE DETERMINATIONS . . .

The Hellige Twin-Kit is the finest of the small testers on the market. It is equipped with the famous Hellige Glass Color Standards that never fade or change and carry a lifetime guarantee.

Write for Folder No. 800-F

HELLIGE
INCORPORATED
3718 NORTHERN BLVD. LONG ISLAND CITY 1, N.Y.

THE MODERN LAWN MOWER SHARPENER

CUTS MAINTENANCE COSTS
•
LOWER CAPITAL INVESTMENT
•

Economically and Quickly Sharpens All Municipal Mowers

Priced $241.50 (less motor)

Sharpens All Reel Type Mowers • Hand, Power or Gang • 10 to 20 Minutes • No Dismantling No Extra Attachments Needed

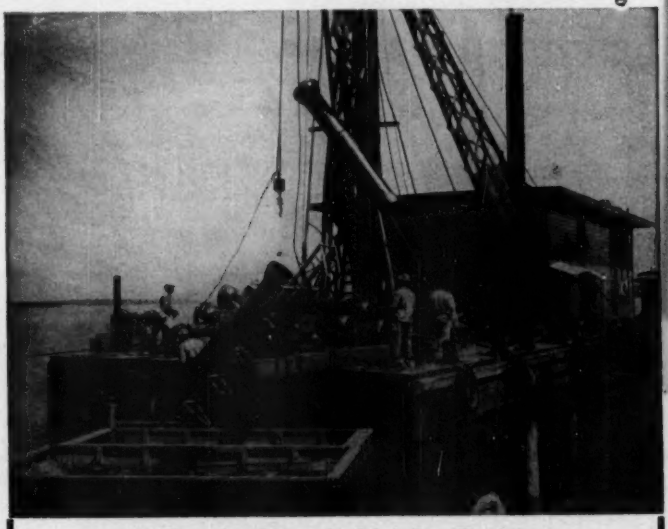
All reel type mowers, from 5-inch edgers to 36 inch power mowers, are quickly sharpened to extreme ends of both left and right twist reel blades. Handle, wheels, roller and motor repair in place when sharpening is in process. Bed knife is sharpened in same brackets that hold mower in grinding position. No extra attachments required. One lever puts mower or bed knife in grinding position. 100% steel construction. Grinding head rides on five ball bearing races. Small, compact, easy to operate. Sharpens wood chisels, joiner knives and planer blades without extra attachments. Skate Sharpener Attachments available.

1/3-hp. G.E. 60-cycle Motors now available—$21.50 extra.

Send for Free Bulletin No. 258

ORDER NOW • IMMEDIATE DELIVERY

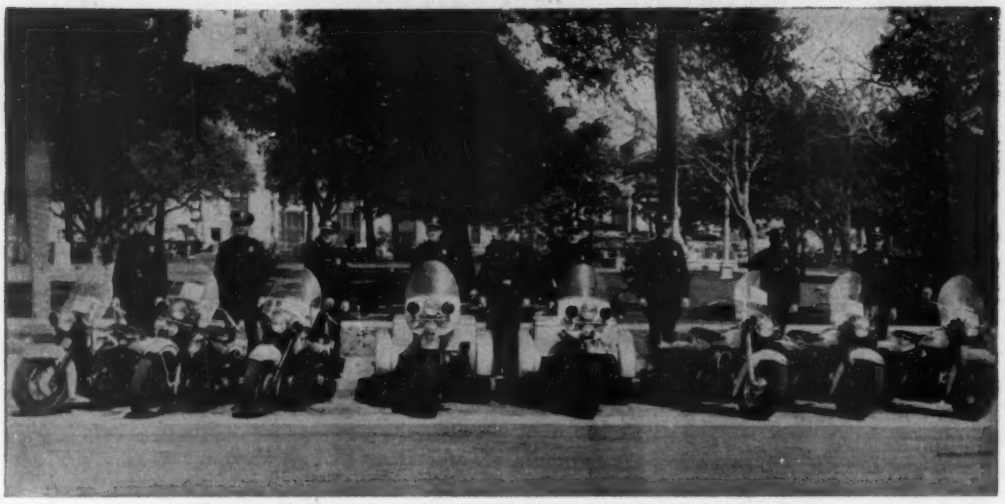
MODERN MFG. CO.
160 N. FAIR OAKS AVE. • PASADENA 1, CALIF.



16" Water Pipe Line under John's Pass, Fla., being installed in 35 feet of water

BOYCE COMPANY
Submerged Pipe Lines All Over the World
MEMBER Phone 3-2530 CLEARWATER, FLA.

Pensacola, Florida, 100% Equipped with HARLEY-DAVIDSONS



Pensacola's "all Harley-Davidson" traffic squad. Left to right: F. A. O'Neal, H. P. Peake, J. G. Hall, W. E. Dickson, Asst. Chief G. M. White, E. R. Doll, R. M. Godwin, L. J. Champa, Oscar Caperton.

"THIS Department is fully equipped with your motorcycles, including six solo motorcycles and two three-wheel Servi-cars. Both types have proven very satisfactory" . . . writes Police Chief Crosby Hall of Pensacola, Florida. Six of the motorcycles are equipped with radios.

Pensacola, on the heavily traveled tourist route to Florida, finds Harley-Davidsons indispensable to effective traffic control. The entire motorcycle squad is Harley-Davidson equipped. Six solo models are used for general patrol and two Servi-Cars for downtown patrol and checking parking meters.

Your city, likewise, can benefit from the use of Harley-Davidson Police Motorcycles. These big, powerful motorcycles are built especially for police work. Their easy handling, quick pickup, road-hugging stability, riding ease, effortless steering and other features help the mounted officer do his duty more effectively. Ask your dealer to call on you with complete information, or write

HARLEY-DAVIDSON MOTOR COMPANY, Milwaukee 1, Wisconsin

HARLEY-DAVIDSON

MOTORCYCLES POLICE BETTER TRAFFIC CONTROL *SERVI-CARS*

Municipal Purchasing News

Useful information for officials who procure equipment and commodities for the construction, operation, and maintenance of varied municipal services

J. H. Ballantine D. E. Broggi

Neptune Meter Election

Robert W. Ballantine, secretary of the corporation, reports that the board of directors of Neptune Meter Co., 50 W. 50th St., New York 20, N. Y., at its annual meeting April 24th, elected John H. Ballantine as chairman, and Dante E. Broggi, president.

Mr. Ballantine retires from the presidency after serving in that capacity for 17 years.

Mr. Broggi, a resident of Valley Stream, L. I., was graduated in 1920 from The College of the City of New York. He joined the firm in 1920 and for the past four years served as vice-president and general manager.

Buy Salt Early

Stockpile that salt early!

This is the advice that the Cayuga Rock Salt Co. of Myers, N. Y., is urging on municipalities so that their snow and ice-fighting crews will be adequately cared for. The advice is not because of a shortage of salt, but because of a shortage of transportation to get the salt to the user. Just at the time that salt orders generally are being placed, rail and truck transportation loads are at their peaks.

Furthermore, the salt companies must also serve the railroads, industry, and government, whose important needs in connection with the present defense program aggravate the supply problem.

Fill you bins now.

There will be enough salt for everyone's needs, the Cayuga officials feel; if the orders can be placed so that they avoid these peak periods. Since little, if any, deterioration will take place in the stock piles, there will be no loss in investment. The company urges that 75% of next winter's salt needs should be in the city's bins before October 1.

Deep Tamper

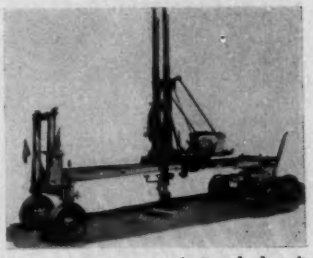
A new development in a machine coving the tamping field has been announced by the R. P. B. Corp., 2751 E. 11th St., Los Angeles 23, Calif. This machine meets the requirements for deep, wide tamping at an economical cost and has features that give proper control of the hammer, at the same time delivering the required impact blow which ranges from a patting action to the full force of the hammer of 5,500 pounds, and with a frequency speed of the hammer ranging from a few blows to 60 blows a minute.

The machine travels transversely with the ditch after it has been set astride the ditch and will tamp a trench 15 feet wide and 15 feet deep. It also is designed to tamp a canal bank where dirt has to be put on and tamped down to a required density.

The carriage and hammer are propelled by a heavy-duty air motor which is mounted on the platform. The machine is designed so that it can be readily collapsed by another air motor and drum suspended under the carriage platform.

When preparing the machine for towing, the draw bar is removed and outward wheels swung around to the rear of the forward wheels and then pivoted and located into their proper positions. The machine is fully automatic, and can be instantly set to any blow desired.

The deep tamper can also be readily applied to a narrow ditch, deep ditch, such as deep sewer lines and used in a trailing position.

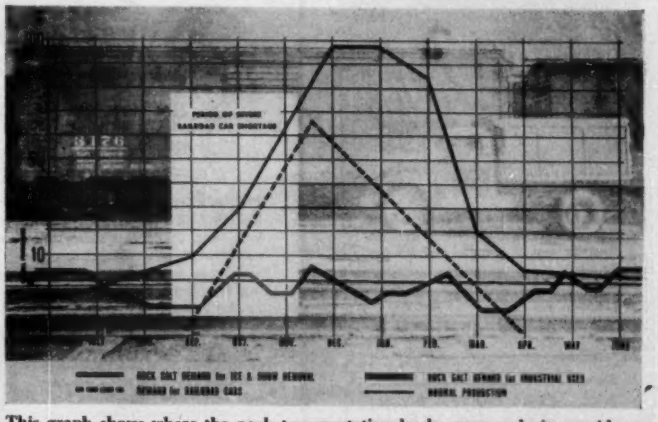


A deep tamper—so designed that it can be swung around to right angles of the truck by swiveling the two rear wheels on the breaker, and then the draw bar is attached to wind with the breaker and the other to the truck which pulls the machine along with the truck.

National Emergency Sparks Fire Hose Sale

Whereas during World War II much of the fire hose bought for civilian defense units was an emergency grade, there seems now to be a notable trend to acquiring increased amounts of top-quality hose.

As worded by J. M. Flounders, manager of hose sales at The B. F. Goodrich Co., Akron, Ohio: "Municipalities are seeking maximum protection today rather than lower-price merchandise. Much of our footage is in the new Fire King double jacket hose that is 50% stronger and 12% lighter than standard hose."



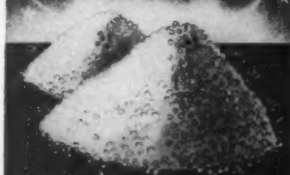
This graph shows where the peak transportation loads occur and gives guidance on how to avoid them.

Let's reflect a moment...

SAVE TIME & MONEY USING THE

Cataphote

BEADED SIGN KIT



Reflectorize and give extra life to your signs at ½ the usual cost. A brand new, extra low cost, easy-to-apply method of reflectorizing your signs. No special equipment, no special training. Virtually foolproof. Now you can reflectorize your own signs in your own shop. Write for full info and prices.

Cataphote Corporation

TOLEDO 10, OHIO

Rush FREE descriptive pamphlet and full price list on CATAPHOTE Beaded Sign Kit and its low cost advantages to me:

Name_____

Title_____

City_____

State_____

MFRS. AGENTS INQUIRIES INVITED!

Calculator With Tape; And Microfilm Reader

A calculator with tape, a new microfilm reader, and Perma-Wood card files, are announced by Remington Rand, Inc., 315 Fourth Ave., New York 10, N. Y.

Portable, compact, rugged, and streamlined, Remington Rand 10-key printing calculators multiply directly, divide automatically, add and subtract, and print the proof on the tape. They are described in two new bookets: *Facts About Office Figures*, and *New Tempo in Figure Production with the Printing Calculator*. Of special interest are the pages describing such applications as computing interest, payrolls, inventory, and percentage of increase or decrease.

Regardless of the type of microfilm equipment in use, with the portable new Film-A-Record electronic AO reader you can change from the standard 20 to 1 magnification to 35 to 1 in a matter of seconds. It will rewind 100 feet of film in 15 seconds. The reader occupies only 16 by 23 inches of floor space.

A specialized wooden cabinet for punched cards is available in the same outer dimensions as standard steel units. "Densiwood" facing resists impact, and the reinforced shell will not warp. The Perma-Wood tabulating card file is described in specification sheet LBV 584.

Manual on Hose Drying

Fire hose can be dried quickly and without inconvenience after use by this equipment.

What's the story of the Circul-Air fire hose dryer? What's the capacity, will it thaw clothing, does it dry the rubber lining? These and other questions are answered precisely in a new *Hose Drying Manual*.

In addition to discussing the proper care of fire hose, it tells why it must be dried and how to dry it. Included also are four pages of letters of Circul-Air users and significant remarks by 25 fire chiefs. Copies of this 12-page booklet may be obtained from The Circul-Air Corp., 575 E. Milwaukee Ave., Detroit 2, Mich.

Time, Money SAVED Because REFINITE is NEIGHBORLY in the...

Cities & Towns in United States!

Problems in WATER TREATMENT are rightly solved when you call in the RIGHT ANSWER people. Refinite's Sales & Service Staff blankets the nation, and there is a representative close enough to give you neighborly service. Merely get in touch with Norm Tucker at Refinite in Omaha. He will have the Refinite man nearest you get the necessary details concerning your problem, and forward to the RIGHT ANSWER Service in Omaha . . . for immediate attention.

Today . . . ask the girl on the switchboard to get Norm Tucker of RIGHT ANSWER Service . . . ORchard 3000 . . . Omaha. Or, write. Address: Right Answer Service, Refinite Corp., P. O. Box 1312, Omaha, Nebraska.

Refinite

WATER REFINING EQUIPMENT

OMAHA, NEBRASKA

Operators Know . . . the

LULL Shoveloader is SAFER TO OPERATE

SAFER from MOVING PARTS and FALLING ROCKS

WOULD YOU like to operate a loader which required you to sit directly between the working lift arms? Of course not! Neither would operators. They too know the danger of falling boulders and moving arms.

● SIT IN SAFETY in the LULL SHOVELOADER . . . designed for maximum operator safety.

LULL SHOVELOADERS are outstanding for municipal use. They work every day of the year loading broken concrete curbing, ripping pavement, digging and loading dirt, cleaning ditches and reservoirs, leveling land and landscaping, sweeping streets, patching asphalt, bulldozing, backfilling, removing snow and many other jobs. Lull Shoveloaders are safe too!

OPERATORS KNOW their position on a loader is important to their safety. On a LULL SHOVELOADER, they know they are well clear of moving arms and falling rocks. They know they have full freedom of movement without fear of the giant they operate.

OPERATORS ARE CONFIDENT in the SHOVELOADER'S safe, versatile operation. They like its safer lifting, loading, scraping, bulldozing, digging and transporting. Accidents cost man hours, law suits, and increase insurance rates. Get the facts about LULL SHOVELOADER'S safety today!

It's important that you MAIL THIS COUPON NOW for full details.

LULL Manufacturing Company
3612 East 44th Street, Minneapolis 6, Minn.
Please send illustrated literature on:
LULL SHOVELOADER AND ATTACHMENTS

Name..... Title.....

Company .....

Address .....

City..... 5 ..... State.....

LULL Manufacturing Company
3612 East 44th Street Minneapolis 6, Minn.
Designers and Builders of
The Largest Line of Allied Equipment
for Industrial Wheel Type Tractors

SHOVELOADERS ● UNIVERSAL LOADERS ● FLUID-DRIVEN SWEEPERS ● LULLDOZERS ● SHOULDER MAINTAINERS

PITTSBURGH·DES MOINES

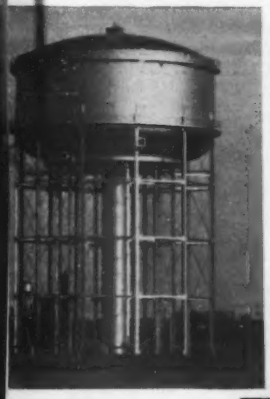
—to serve you on your water storage requirements—

OVER 50 YEARS OF EXPERIENCE IN

Elevated Steel Tank

DESIGN AND CONSTRUCTION

Let us consult with you on your elevated storage tank needs. We will gladly detail the features of our many tank types, and aid in selecting the right design and capacity to fit specific conditions. You can depend on P-DM craftsmanship in fabrication and erection—satisfaction is guaranteed! *Write for free 24-page brochure.*



PITTSBURGH·DES MOINES STEEL CO.

Plants at PITTSBURGH, DES MOINES and SANTA CLARA

Sales Offices at:

PITTSBURGH (25)	3412 Neville Island	DES MOINES (8)	913 Tuttle Street
NEW YORK (7)	Room 915, 270 Broadway	DALLAS (1)	1217 Praetorian Bldg.
CHICAGO (3)	1216 First National Bank Bldg.	SEATTLE	920 Lane Street
	SANTA CLARA, CAL.	619 Alviso Road	

Heads Sales Department

The appointment of Cooke Bausman, Jr., as manager of the sales department, central staff of the Koppers Co., Inc., Pittsburgh 19, Pa., was announced by General Brehon Somervell, chairman and president.

C. Bausman, Jr.

Before joining Koppers in 1948, as assistant manager of the sales department, Mr. Bausman was general manager of the Pennsylvania Ultraviolet Co.

Laboratory Opens New Division

Over ten thousand well-bred rats played host recently to milk sanitarians from New York State, townspeople of Bainbridge, N. Y., and other guests at the official opening of the new offices and laboratories of the Supplee Division of Foster D. Snell, Inc., 29 W. 15th St., New York 11, N. Y. The laboratory in Bainbridge is both a source of rats for research purposes to many drug and chemical firms in the East and a laboratory for vitamin assay and research.

The Supplee Division of Foster D. Snell, Inc., firm of chemists and chemical engineering consultants, became a part of the Snell organization in the spring of 1950. The assay work and rat colony was started in 1923 by the late Dr. George C. Supplee, noted for his research in bio-chemistry.

Of brick, concrete, and cinder block construction, the new building is the first of four planned for Bainbridge. It is located in the heart of the New York dairy country. A major function of the laboratory is to assay vitamin D for dairies which fortify their milk by adding a vitamin D concentrate.

Additions to Technical Staff

Recent additions to the technical staff are William Kanninen, Dr. A. Haldane Gee, and Irving Seidenberg.

Mr. Kanninen will be in charge of the food technology department, carrying out work on vitamin enrichment of foods, food preservation, anti-oxidants, food packaging, and work on other aspects of food.

As director of bacteriology and toxicology, Dr. Gee will supervise various studies, including toxicity tests on animals and humans, and bacteriostatic fungistatic, and antiseptic tests in this field.

A specialist on pyrogen tests, Mr. Seidenberg for the past four years was senior bacteriologist for the U. S. Dept. of Defense, Armed Services Medical Procurement Agency, in Brooklyn, N. Y. He has been engaged in carrying out bacteriological work on antiseptics and disinfectants.

New Ambulance Holds 4 Patients

An extra roomy stock ambulance for accommodating four reclining patients is in the new line of Ford industrial and municipal ambulances for 1951 announced by Shop of Siebert, Inc., 654 Southard Ave., Toledo 2, Ohio.

This model provides easy riding and steering.

The company reports that the Utility model, accommodating one person in a cot and one suspended patient, is the lowest priced, full-sized ambulance ever built. It is an all-steel unit built for rough roads, hard service, and

Easy riding and steering is provided by this new Ford industrial ambulance.

operation in limited spaces. The Siebert Leeds Aristocrat is a beautiful, fine ambulance, with heat and cold insulated, sound conditioned body.

The firm will send its free illustrated booklet on request.

Boston Tried One...
BOUGHT 13 MORE BAUGHMAN SPREADERS

Here are 10 of the 14 Baughman Sand Spreaders recently purchased by the City of Boston after thorough tests of several similar makes.
CITY OF BOSTON

Officials of the Dept. of Public Works of the City of Boston have been delighted with the performance of their 14 Baughman Sand Spreaders . . . For the same reasons that all owners of Baughman Spreaders are pleased:

1. **An unbelievably low price for a machine of this type.**
2. **Constructed of High Tensile Alloy Steel —30% lighter, 17% stronger, abrasive resistant and 5 times more rust-resistant than ordinary steel.**
3. **Absolute Spread Control by Safety Baffle Plates. Adjustable to cover width from 8 to 30 feet.**
4. **Patented Pre-heaters in the bottom of these bodies keep material flowing freely and prevent breakage of moving parts in extremely cold weather.**
5. **Push button control from cab of truck allows spot spreading wherever desired if driven by auxiliary engine. Oil sealed clutch gives finger tip control for spot spreading if power take off drive is desired. Either drive furnished at customer's option.**

At right is George Hyland, Commissioner of Public Works in Boston. With him is J. Leo McGrath, Division Engineer, Automotive Division, Dept. of Public Works, Boston. Both of these officials expressed complete satisfaction with their 14 Baughman Spreaders.

This fleet of Baughman Spreader Bodies was sold by . . .

SANDBERG EQUIPMENT COMPANY
76 Landsdowne St. Cambridge, Mass.

BAUGHMAN

BAUGHMAN MANUFACTURING CO., Inc.
651 Shipman Road Jerseyville, Ill.

"There is a Baughman Distributor Near You"

Your budget doesn't go to blazes when this International fights fires

This new International fire truck is as good at saving money for the taxpayers as it is at helping put out fires.

That's because it's specialized to meet all fire department requirements and heavy-duty engineered to cut operating and maintenance costs.

Specialized for more efficient operation

The International L-305 shown below is equipped with a Hall-Scott 470 fire engine, automatic radiator shutters, and specialized transmission and axle.

It carries complete fire fighting equipment including a 1,000 GPM main fire pump, a 100 GPM auxiliary pump, a 500-gallon water tank, ladders, and hose.

Heavy-duty engineered for lower maintenance costs

Your community pays less for maintenance of an International fire truck. That's because an International is heavy-duty engineered with the traditional stamina that has kept Internationals first in heavy-duty truck sales for 19 straight years.

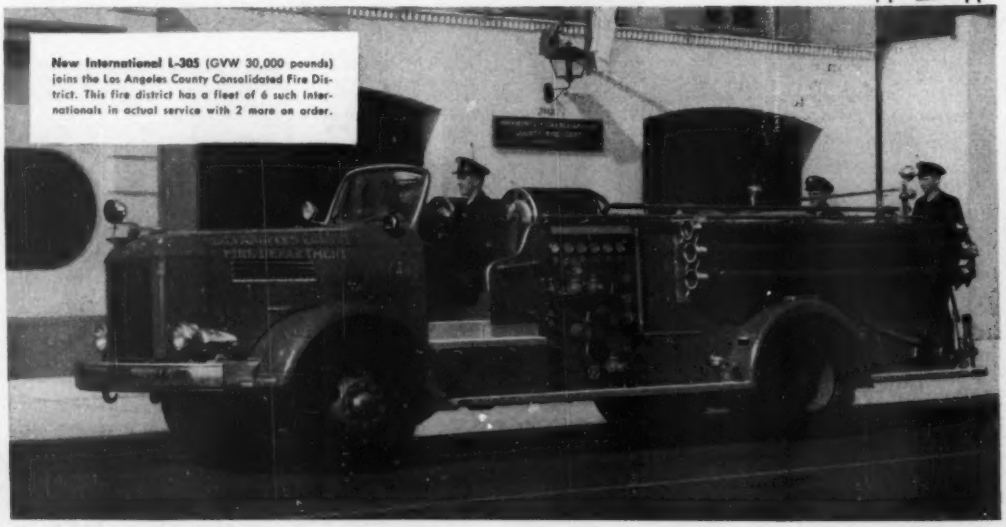
There's extra durability in the Steel-flex frame with its heat-treated chrome manganese steel side rails. There's extra ruggedness in the 4-inch wide chrome vanadium steel front springs with threaded pins and bushings. There's extra strength in the square-fronted radiator with its cast upper tank and fabricated steel lower tank.

Get all the facts now

Get the complete story from an International Truck Dealer or Branch. Whether you need a truck for fire-fighting or garbage-collecting, he'll be glad to help you choose the right model from the world's most complete line of trucks.

International Harvester Builds
McCormick Farm Equipment and Farmall Tractors
Motor Trucks . . . Industrial Power
Refrigerators and Freezers

International Harvester Company • Chicago



New International L-305 (GVW 30,000 pounds) joins the Los Angeles County Consolidated Fire District. This fire district has a fleet of 6 such Internationals in actual service with 2 more on order.

See the new

INTERNATIONAL TRUCKS

Every model heavy-duty engineered for longer life

Heads Golden-Anderson

The Golden-Anderson Valve Specialty Co., 2093 Keenan Bldg., Pittsburgh 22, Pa., announces the election of Grant A. Colton as president. Mr. Colton had been vice-president and general manager.

G. A. Colton

Golden-Anderson manufactures a cushioned surge relief valve which is hydraulically operated and designed with a differential-type piston that exposes a greater area to the closing force than to the opening. It provides full pipeline opening when opened, and is drop tight when closed.

Combination Chest and Safe

A new combination chest and safe unit has been announced by the Herring-Hall-Marvin Safe Co., of Hamilton, Ohio. The unit is a fire-resisting record safe and a burglary-resisting steel money chest combined in a steel-clad, reinforced, concrete block.

The manufacturer reports that it produced this equipment to meet the widespread need of businesses which desired protection against fire, burglary, and holdups, because of 5-day banking weeks and holidays.

The chest may be equipped with an inner partition containing a dual-controlled, key-locked door to add holdup protection for accumulating bank deposits. Its 1,500-pound weight eliminates possibility of burglars removing it from the premises. E. V. Flaherty is general sales manager.

Combination chest and safe in steel-clad reinforced, concrete block.

TOSSITS

KILL MOSQUITOES
20 TIMES FASTER
THAN HAND SPRAYING

NO MOSQUITOES IMMUNE—Our new formula consisting of a combination of newer insecticides gives a 100% kill of all species of mosquito larvae.

EASY TO USE—No equipment needed. TOSSITS are water soluble capsules. Simply toss in water—capsule dissolves—specially formulated "killer" spreads rapidly in all directions.

ECONOMICAL—One TOSSIT will larvacide over 1,000 square feet of water surface: 50 TOSSITS per acre will give 100% kill of all larvae in 24 hours.

TOSSITS are packed 1,000 to the carton, listing at $39.50 FOB, West Palm Beach. Discounts to cities, counties and states.

SENTCO, INC.
(formerly Southern Entomological Co.)
2400 Tamarind Avenue
West Palm Beach, Florida

LIGHT For Emergencies
- Property Protection
- Police & Fire Depts.
- Power Plants
- Public Bldg.

Also
- Automatic Relay Lights
- Vehicle Spotlights
- Sirens

Send for Catalog No. 451

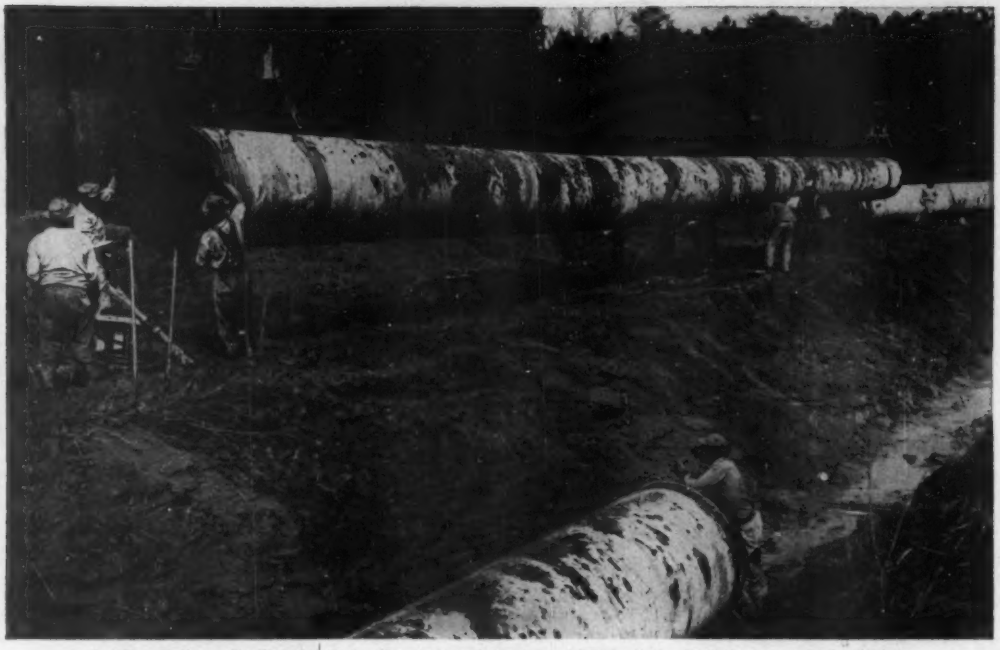
THE PORTABLE LIGHT CO., Inc.
216 WILLIAM ST., N. Y. 7, N. Y.

TO A MATTER OF RECORD...
a Dotmar pays for itself in the first mile of paving!

ON the Eden Parkway, new fast link to Chicago's north suburbs, Robt. A. Anderson & Milburn Bros., Contractors, are paving gutters with a Dotmar Speedmaster Self-Propelled Curb and Gutter Paver at speeds from 5' to 10' per minute. There is no other machine like the Dotmar—it's made for these times.

At left, Dotmar with outrigger which can be extended 12'6" to 20'6" Monolithic curb side of machine runs on form, street side is supported by wheel. It is shown bridging 18'6" slab—half the width of this street. Burlap being dragged to brush slab. Dotmars pave sidewalks too, up to 60" wide. Ask for literature.

Dotmar INDUSTRIES Inc.
511 HANSELMAN BLDG., KALAMAZOO, MICH.



Installing Bethlehem Tar-Enameled Water Pipe in transmission main at Winston-Salem, N. C. Contractor: Blythe Brothers Company, Charlotte, N. C.; Consulting Engineers: John D. Spinks, Winston-Salem; Albright & Friel, Inc., Philadelphia, Pa.

NEW STEEL WATER MAIN IN WINSTON-SALEM

To augment its system of water-supply lines, the City of Winston-Salem, N. C., recently authorized the construction of a transmission main, 8800 ft long, from Salem Reservoir to the Salem Filter Plant. The new 48-in. main is built of 7/16-in. Bethlehem Tar-Enameled Water Pipe, enameled on both sides, and wrapped with 15-lb felt. The pipe was furnished in 40-ft lengths, then butt-welded in the field to form 120-ft units. Dresser couplings were used at the 120-ft intervals.

Advantages of Bethlehem Tar-Enameled Water Pipe

Pipeline operators and contractors get the following advantages when they select Bethlehem Tar-Enameled Water Pipe for water-supply lines:

(1) high strength
(2) resistance to incrustation
(3) resistance to corrosion
(4) long service life
(5) freedom from leakage
(6) economy of installation and operation

Bethlehem Tar-Enameled Water Pipe is impervious to incrustation and corrosion because it is generously coated on both surfaces with a specially prepared tar-base bituminous liquid. This coating is applied uniformly over the entire length of the pipe by a mechanical machine-spinning process. It is of substantial thickness and density, and has great adhesive value.

With Bethlehem Tar-Enameled Water Pipe, leak-proof girth seams can be obtained either by welding or by using mechanical couplings or other fittings. The pipe is made in 40-ft lengths. It comes in all diameters from 22 in. i. d. up to the largest permitted by common carriers. For more detailed information, get in touch with the nearest Bethlehem office.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM *Tar-Enameled* WATER PIPE

Of interest to civil defense officials is this new, emergency lighting unit.

Automatic Lighting Unit For Civilian Defense

A new, emergency lighting unit that plugs into any standard lighting outlet and is ideal for civilian defense has been introduced by the U-C lite Mfg. Co., 1063 W. Hubbard St., Chicago 22, Ill. It is called the Big Beam Model 2-AD special.

Whenever the regular lighting current fails or is interrupted, this unit automatically switches on to provide flood lighting over a large area. It meets the requirements for automatic emergency lighting in theaters, hospitals, amusement buildings, night clubs, institutions, department stores, and bomb shelters.

Among its features are its easy installation; an 8-foot rubber-covered cord and plug to fit any 110-120-volt standard lighting outlet; two independent powerful, floodlight heads, five inches in diameter, and brass, friction-type, corrosion-proof, swivel joints to hold the adjustable heads in any horizontal or vertical position.

Weighing 18 pounds, the unit operates on one 9-volt standard dry battery and its container is of 20-gauge steel.

Waterproofed Sidewalks

Versatall, protective coating, is a synthetic resin compound, especially formulated to withstand the action of many chemicals. It is waterproof, preventing wood or concrete from becoming saturated. Manufactured by The Holms Co., 2468 N. 19th St., Milwaukee 6, Wis., Versatall can be used on wood or concrete.

The company reports that one city has waterproofed its sidewalks with Versatall against the wear of weather.

The product is made from a combination of several coal tar substances. It is cut with a solvent when applied and the hard material is left after the solvent evaporates away.

The manufacurer also issues Sealox, ready-to-use cement patch, for filling holes, cracks, or corners that are difficult to clean.

The Holms Co. is a distributor for the Vita-Aire Division, Hydro-Aire Corp., Waukesha, Wis., manufacturer of Vita Aire, ultra violet air purification units which destroy odors, smoke and mold, and are made for industrial, commercial, and residential use.

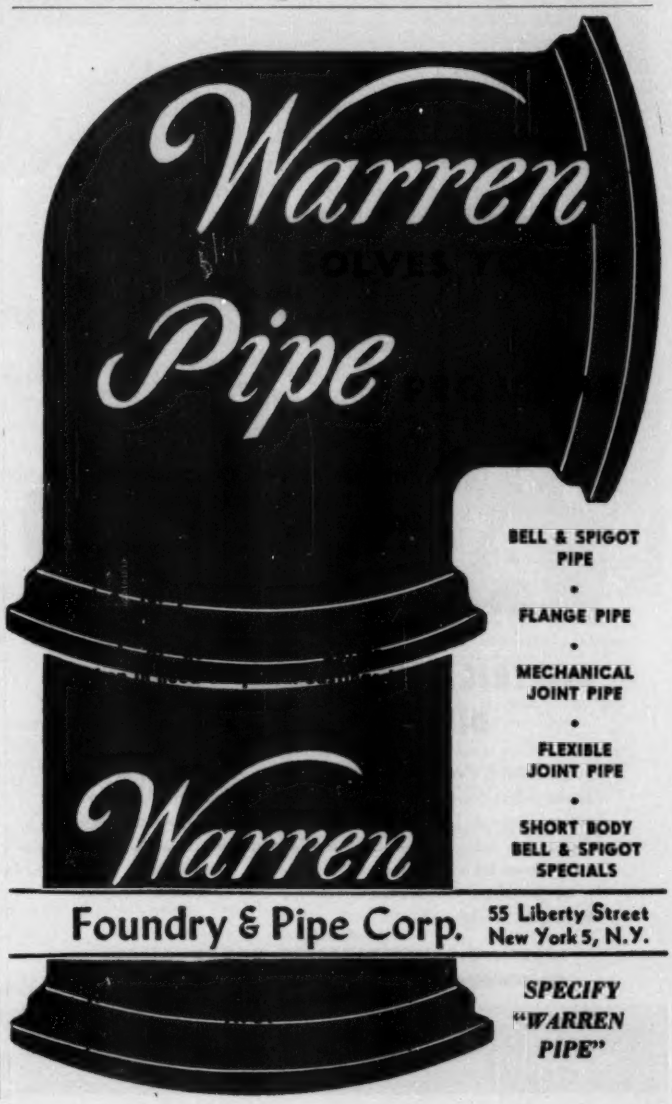
Scoopmobile Has Capacity Of Five Cubic Yards

Mixermobile Manufacturers of 8027 N.E. Killingsworth St., Portland 20, Ore., reports the introduction of the Super-Scoopmobile, claimed to be the largest materials handling scoops of its kind in the construction industry.

The scoop bucket has a level capacity of five cubic yards. The tires stand as tall as the average man, and the whole machine weighs over 18 tons.

Other features are: the heavy duty four speed forward and reverse transmission, powered by a 4-to-1 planetary drive axle from a 250 hp diesel engine,

The carriage of the Super-Scoopmobile can be operated with the track in any position.
and the track tilt which has hydraulic control.



Construction of defense housing projects will increase the burden on municipal manpower tremendously.

The ideal way to ease the garbage collection burden is to insist, right from the start of these projects, on the installation of a food waste disposer in each new home. It's a practice that is fast gaining acceptance.

ELECTRIC FOOD WASTE DISPOSER

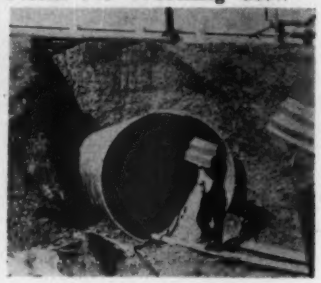
. . . is ideal for such purposes. Proved in thousands of homes as the safest, most efficient and most sanitary method of food waste disposal. It shreds food waste fine and flushes it down the drain. Safeguards family and community health. Frees manpower for other duties.

Be prepared. Get all the facts. We will be glad to consult with you. Write today.

WESTINGHOUSE ELECTRIC CORPORATION
Electric Appliance Division · Mansfield, Ohio

YOU CAN BE SURE..IF IT'S Westinghouse

This Tunnel Plate Lining Needs No Wrecking Crew

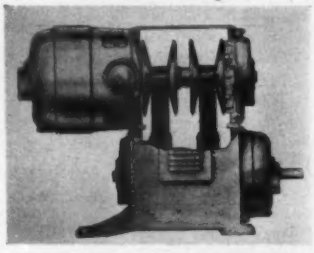


No longer is it necessary to tear up expensive pavements and disrupt business to install sewers and other underground structures. The Armco liner plates provide a simple, low-cost method of tunnelling. No special tools are required and all assembly is done from the inside.

Manufactured by the Armco Drainage & Metal Products, Inc., Middletown, Ohio, these plates reduce maintenance, are free from weather hindrance during construction, and can be salvaged for reuse when employed for temporary tunnel lining.

The firm has published a new folder, *Why Hire a Wrecking Crew to Install Underground Structures*, which lists the physical properties of its product, and illustrates its use as water and utility line tunnels, and relining highway and railroad tunnels and underpasses.

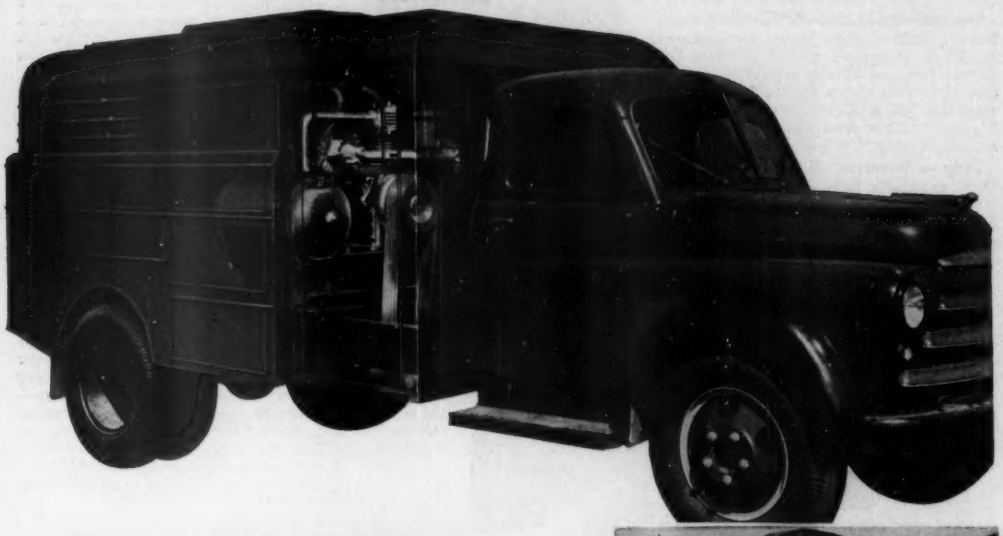
Dual Belt Variable Speed Motor Developed



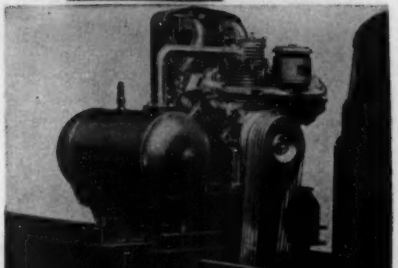
A line of extra heavy duty motors for variable speed with ratings as high as 50 hp has been developed by U. S. Electrical Motors, Inc., 200 E. Slauson Ave., Los Angeles 54, Calif., or Milford, Conn. These are part of the firm's Varidrive line.

To carry the heavy load through the internal speed changing transmission, U. S. engineers have incorporated dual varibelts, thus distributing the load so that no undue strain is imposed. The Autotaut, tension control, has been designed to counterbalance belt load. A calibrated spring is employed to maintain pressure between the two halves of the driven varidiscs and the sides of the belt. The company reports that use of dual belts does not affect the ease of changing motor speeds.

If your crews use air tools, here's big news—



Your truck's engine powers this compressor!



**Lower first cost* . . . no compressor engine, clutch, battery, starter, fuel tank or cooling system to buy — no trailer.

**Half the maintenance* . . . no compressor engine, clutch, battery or cooling system to service. No trailer running gear to lubricate, no tires to wear or replace.

**No compressor engine cooling system* to guard against freezing in cold weather.

**More use from your truck engine* . . . which usually stands idle 7 out of 8 hours.

**No time lost* . . . compressor, service truck and men arrive at the job together. And, no waiting for compressor engine to warm up.

It's the famous Jaeger "New Standard" Compressor — heavy-duty, 2-stage, precision built. Furnishes 125 cfm of 100-lb air, instead of old standard 105 cfm. With that extra air, tools strike harder and faster, do 30% to 40% more work daily.

It's ready to mount compactly on your service truck and get power from the truck's engine through a simple, rugged power-takeoff unit — job-proven in hundreds of installations.

A long-needed type of compressor. Large users are already standardizing on "Travel-Air" for big savings and real operating advantages.

"Travel-Air" mounts on five popular makes of 1½ and 2-ton-rated trucks — easily adapts to your special truck body designs.

Power-takeoff unit is husky and simple. Only 4 moving parts other than its heavy duty ball bearings. No gears — no power losses.

Two simple controls — both in the cab. One selects rear wheel or compressor drive, the other actuates automatic control of engine compressing speed.

Engine compressing speed automatically regulated to maintain steady 100-lb air. Top compressing speed of the engine is about 1750 rpm — a mere 24 mph on the speedometer.

Write for Bulletin TC-1 and complete information.

The Jaeger Machine Company, 505 Dublin Ave., Columbus 16, Ohio

JAEGER "TRAVEL-AIR" COMPRESSOR

Sold and Serviced by Distributors in 130 Cities of United States and Canada

Cleco Distributors Are Announced

The Cleco Division of the Reed Roller Bit Co., 5125 Clinton Drive, Houston 20, Texas, announces the appointment of two firms as distributors of Cleco products. They are the Gil Boers Equipment Co., 7625 S. Kedzic Ave., Chicago, Ill., and Airline Equipment Co., 2024 Frankford Ave., Philadelphia, Pa.

They will handle the full line of Cleco pneumatic tools.

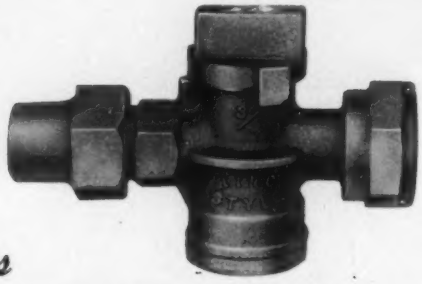
The Cleco line includes pneumatic tools for construction, manufacturing, metal fabrication, foundries, industrial maintenance, and stone carving.

Hercules Powered Air Compressor

The new Gardner-Denver Model WH-105 two-stage, portable air compressor, recently introduced by Gardner-Denver Co., Quincy, Ill., is powered by the Hercules QXD-5, gasoline engine. Built by the Hercules Motors Corp., Canton, Ohio, this model is a 6-cylinder engine with a 3 7/16-inch bore and 4⅛-inch stroke. The piston displacement is 230 cubic inches.

The crankcase and cylinder block are cast integral to insure perfect alignment of crankshaft bearings and cylinder bores. Maximum power and operating economy are assured by the high compression, high turbulence cylinder head. The engine is equipped with an oversized, gear-driven oil pump which provides pressure lubrication to all main, connecting rod and idler gear bearings.

The portable compressor provides an all water-cooled 105-cfm unit. Adequate rated capacity is assured at any altitude since it is a two-stage air compressor. The Gardner-Denver unloader pilot operates the suction unloading valves within a fixed range and automatically throttles the engine to idling speed and unloads the compressor. The machine is furnished on two or four wheeled spring mounted running gears and on wood skids for truck mounting.



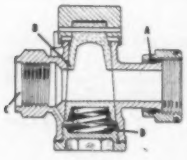
This

METER VALVE

Saves installation costs where space is limited

Permitting "in-line" setting of meters in tight space, the Ford Straight Ringstyle Valve also saves fitting labor and at least one coupling.

This valve enjoys all of the advantages of the famous Ford Angle Ringstyle valve. Note these features: (A) Ringstyle coupling that eliminates a pipe joint as well as a coupling (B) Recessed key that keeps deposits from damaging valve surfaces (C) "Set-in" threads to protect threads of iron pipe and (D) Bronze spring that keeps key in place. No leather gasket required, prolonging valve life.



For full information, ask for Catalog that also contains details on many other meter-setting products for economy minded utilities.

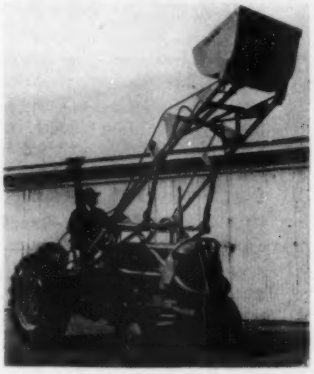
THE FORD METER BOX COMPANY, INC.

FOR BETTER WATER SERVICES

FORD

Wabash, Indiana

Wagner Iron Works Improves and Adds To Its Equipment



The loader demonstrates its high lift.

Wagner Iron Works, 1905 S. First St., Milwaukee 1, Wis., has modified its complete line of hydraulic front end tractor loaders. These include heavily reinforced dipper stick, removable dipper stick, improved bearing pivot construction, side thrust plates, main frame improvements, and increased visibility.

A new model has been developed for the Farmall cub tractor and International-Harvester Super A. Additional loaders are under test for many other makes and models of tractors.

The firm, which is observing its 100th year in the structural steel fabricating business and building specialty lines, has heavy duty loaders available for many tractor models.

The sanitary all-weather hydrant, which gives consistent top performance with a minimum of maintenance.

Sanitary All-Weather Hydrant

A non-freezing sanitary hydrant that provides for the protection of supply water against contamination has been designed by engineers of the J. A. Zurn Mfg. Co., Erie, Pa. This hydrant has no seep holes, thus eliminating water contamination. It will function properly at static water pressures from 25 to 130 psi and at temperatures from 100° F. to minus 70° F.

A special rubber sleeve enclosed in the casing insures operation during freezing or low temperature weather, since movement of the rubber upon the introduction of water pressure breaks up any frozen water inside the casing. The elastic action of the sleeve when pressure is turned on protects all mechanical parts and the flow of water flushes out residual ice.

The open area of each respective size of hydrant is at all points at least equal to the open area of the pipe connections. This type hydrant permits the maximum flow rate with a minimum pressure drop. It has removable parts.

Furnished with male or female nozzle threaded for hose connection, the hydrants are available in ¾ and 1-inch size (on special order, 1¼, 1½ or 2 inches) and for 2 through 9 foot depth of bury.

Executive Vice-President

L. B. McKnight has been elected to the newly created position of executive vice-president of the Chain Belt Co., 1600 W. Bruce St., Milwaukee, Wis.

Since joining the firm in 1927, Mr. McKnight served in various managerial capacities and has been a vice-president and director since 1948.

BOUGHT ANY FIRE HOSE . . . LATELY?

IF SO YOU'VE FOUND THAT IT IS

Expensive — Expendable — and in Short Supply

Don't gamble your $1.75 hose against damage from mildew and rot, protect it with CIRCUL-AIR, the electrically operated HOSE DRYER which circulates pre-warmed fresh air through coiled wet hose at the rate of 5 to 6 air changes per minute. CIRCUL-AIR is designed to lengthen hose life; improve the appearance and functional design of new fire houses, and to save floor space and hard work. No other method is so fast—so easy to use—so economical.

These Towns . . . and 1,000 Others Protect Their Hose With Circul-Air

AUGUSTA, GA. — ALLENTOWN — AKRON — BOSTON — BURLINGTON
CHICAGO — COLUMBIA, S. C. — ERIE — COLUMBUS — DETROIT
GALVESTON — GREENSBORO — KANSAS CITY — MEMPHIS — LAKE CHARLES — NEWARK — LOUISVILLE — MILWAUKEE — OKLAHOMA CITY — OMAHA — PROVIDENCE — ROCHESTER — SEATTLE — SHREVEPORT — SANTA FE — TOLEDO — TWIN FALLS — TRENTON
WINNIPEG — WHEELING — JACKSONVILLE — MIAMI — NEW BRITAIN — BUFFALO — GRAND RAPIDS — HOUSTON — PENSACOLA
MERIDEN — YOUNGSTOWN — NEW HAVEN — BIRMINGHAM
FITCHBURG — DAYTON — PHILADELPHIA — WASHINGTON, D. C.

NEW HOSE DRYING MANUAL
TELLS HOW TO DRY, STORE AND CONSERVE FIRE HOSE
Send for your copy today!

THE CIRCUL-AIR CORPORATION
575 E. Milwaukee Street
DETROIT 2 MICHIGAN

FLYING GLASS CAN BE A DEADLY KILLER...

PAINT for SURVIVAL

The amazing, new, transparent, protective coating for glass.

IS YOUR COMMUNITY PROTECTED?

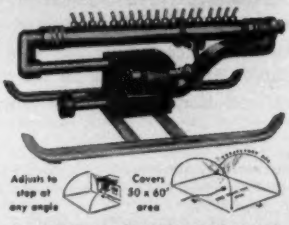
★ Minimizes danger of flying fragments
★ Helps prevent glass splinters
★ Shatter resistant
★ Easily applied, low in cost
★ One application lasts a year
★ New York Testing Laboratory reports available on request.

Our staff of experts will be happy to prepare an estimate of cost [illegible] protection, including labor and materials for public buildings, hotels, schools, hospitals, etc., or prices of PAINT for SURVIVAL in bulk quantities. A limited number of dealerships available • Communicate with

PAINT FOR SURVIVAL
ATOMIC SHELTER INSTITUTE (ESTABLISHED 1946)
10 PARK AVENUE, NEW YORK 17 · OREGON 9-3749

ACME Shower Queen
"Rains Over All"

300 GALLONS PER HOUR, FALL LIKE *Rain*



For LAWN and GARDEN BEAUTY

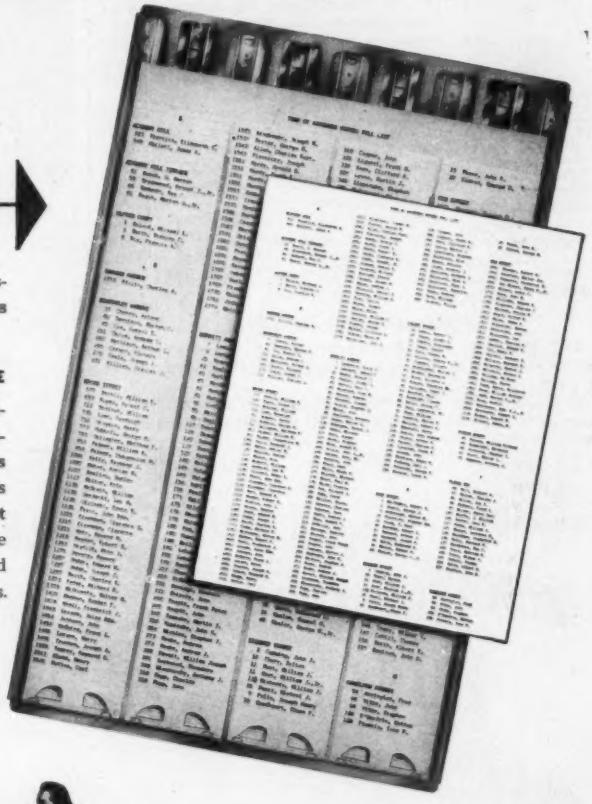
Shower Queen's oscillating action distributes water in natural rain-like manner. Fully automatic. Simple hand adjustment allows it to operate close to house yet windows and walls stay dry. Easily re-positioned without shutting off water. Small plots or large expanses accommodated by regulating volume at faucet. Built of finest non-rusting materials. Precision machined for long and dependable service. Positively guaranteed.

MAIL COUPON NOW

12345
Please Send Free Data and Shower-Queen Price
Name_____
Address_____
City_____ State_____

ACME SPRINKLERS

Prepare your Poll Lists this simple, easy way



Lists are always up-to-date. That's why progressive election officials are using Flexoprint Panels for maintaining lists of registered voters!

FASTER...LESS EXPENSIVE...MORE ACCURATE

Typewritten die-cut cards are filed alphabetically or by street and number on district or precinct panels. Many different card and panel sizes are available to fit your requirements. Old cards are quickly removed, new ones inserted without changing the sequence of other cards on the panel. Instantly ready for photographing and fast, low-cost reproduction by photolith process.

Expensive typesetting and multiple proofreading are "out" the Flexoprint way! Cuts down errors, costs, time and office space required. Take Poll Lists off the "headache list" with Remington Rand Flexoprint!

Flexoprint Panels housed in standard 2-drawer Safe-Files which protect the panels from fire at "point-of-use."

An illustrated folder **containing complete description of the efficient Flexoprint System for Voters' Registration and other lists will be sent to you on request. Just call your nearest Remington Rand Branch Office for a copy of KD-499, or write Management Controls Reference Library, Room 1119, 315 Fourth Avenue, New York 10, N. Y.**

Remington Rand INC

THE FIRST NAME IN RECORD SYSTEMS

"Rebore" Sewers

Clogged sewer lines can be restored to capacity and thereafter maintained by a comprehensive sewer reboring mechanism with operating controls built into an enclosed heavy-duty truck. This mobile unit backs up to a manhole ready for immediate reboring up to 1,000 feet of pipe in each direction. The usual time-consuming wrench work is eliminated. The power-driven rod is in one continuous piece, fed from a giant reel. This rod is directed through a guard tube into the pipe. The proper size cleaning head is motor-driven with a boring, spinning action, cutting away tree roots, sediment, and scale.

The spinning blade of the cleaning head must cut through, not by-pass, obstructions in the line, without injury to the pipe or rod-kinking, snap-back. An automatic fluid clutch cushions any shock of contact with an immovable object, such as a defective tile—location of defect is registered on the machine to eliminate costly digging to locate the defect.

The manufacturer states that old lines abandoned for reconstruction have been restored to use. High-duty work by a two-man crew brings the cost of servicing well within budget limitations for sewer maintenance of municipalities, cemeteries, and golf courses. The work is performed by the company's crew and by licensed contractors. A pamphlet, *Now Rebore Sewers,* is available from the National Power Rodding Corp., 4600 W. Madison St., Chicago 44, Ill.

Seeds of Victory

"Today, we are faced with the deadly serious business of survival—survival in the struggle against the tyrannical forces of Communism, at home and abroad."

This is the opening sentence in the booklet, *Seeds of Victory,* which is being distributed throughout the nation by Caterpillar Tractor Co., Peoria 8, Ill., in the interest of maintaining a strong military and national defense program.

The booklet shows how the company through its products is striving to meet the crisis now facing the world. A message is directed to the more than 3,000 firms which sell materials to Caterpillar: "In your hands are the seeds of victory. Each item you turn out, each part you assemble, each job you do a day early, each extra effort you put forth is a seed planted for victory."

The company reports a half million copies are going to Caterpillar dealers, employees, allied manufacturers, and stockholders, and government officials, armed forces personnel, and other interested groups.

In line with activities in the national defense program, Louis B. Neumiller, president of Caterpillar, announces that W. J. McBrian, vice-president, has accepted the key position of vice-chairman of the Munitions Board, top governmental agency.

As vice-chairman for Procurement and Distribution of the Munitions Board, Mr. McBrian is responsible for the administration of those matters for the military departments. He will direct and coordinate the work of six offices and agencies: Office of Procurement, of Distribution, Small Business, Price Control Policy, Standards Agency and the Cataloging Agency. He also will recommend and review actions of the Armed Services Explosives Board.

HERE IS THE MACHINE THAT HAS REVOLUTIONIZED CONCRETE SAWING

NEW *Self-Propelled* CONCUT CONCRETE SAW

CONCUT

THE GREATEST NAME IN CONCRETE SAWS

Today, concrete sawing is *big business!* . . . and the Self-Propelled CONCUT is the machine to handle this business *faster, easier* and *cheaper.*

The Self-Propelled CONCUT brings a new high in efficiency for all of your concrete and asphalt sawing jobs. The Self-Propelled feature, the Finger-Tip control, the exclusive Lever Lock are some of the engineering features, which mean substantially lower blade costs . . . virtual elimination of operator fatigue and fewer manhours on the job.

● *More and more cities are specifying "sawing before breaking." Contractors and engineers are becoming increasingly aware of the advantages and long-range economy of "sawing before breaking," wherever concrete or asphalt is removed.* • *NOW is the time to get full details on the Self-Propelled CONCUT . . . Write for Bulletin 12 today!*

CHECK THESE BIG CONCUT FEATURES

SELF-PROPELLING . . . virtually operates itself, gives you anti-fatigue sawing, longer blade life and fewer manhours on the job.

FINGER-TIP CONTROL . . . Spindle speed tachometer, water pressure gauge, transmission control lever, motor shut-off and motor throttle located on dash panel directly in front of operator.

LEVER LOCK . . . enables operator to remove blade from cut, then lower to same cutting depth without changing adjusting screw.

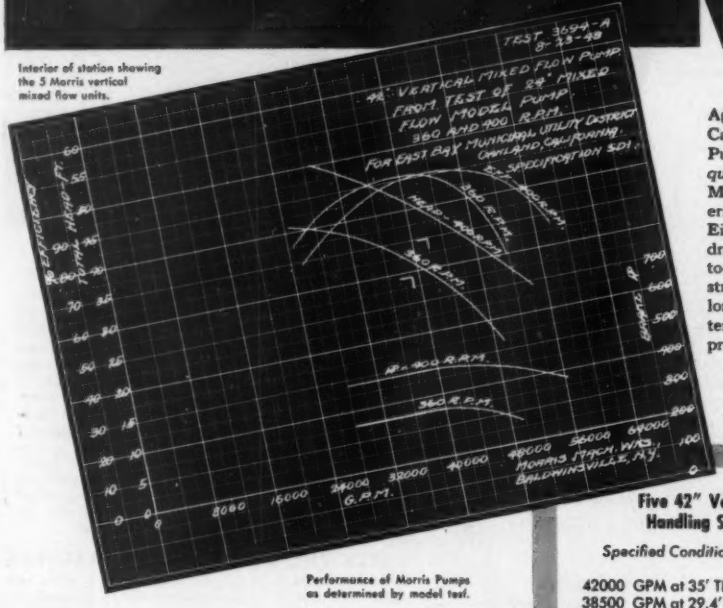
CONCRETE SAWING EQUIPMENT, INC.

15 North Oakland Avenue, Pasadena 1, California

Again! MORRIS PUMPS for Quality and Performance

Interior of station showing the 5 Morris vertical mixed flow units.

five 42" Mixed Flow Units Installed in EAST BAY treatment Plant OAKLAND, CALIF.



Performance of Morris Pumps as determined by model test.

Again and again, municipalities from California to Maine specify Morris Pumps for two good reasons: *inbuilt quality and exceptional performance.* A Morris installation is the heart of a modern sewage plant.

Eighty-seven years' experience in hydraulic engineering, combined with up-to-the-minute design and rugged construction, explain the high efficiency . . . long wear . . . lower operating and maintenance costs . . . uninterrupted service provided by Morris Pumps.

Morris engineers are readily available for technical consultation — without cost or obligation. Write.

Five 42" Vertical Mixed Flow Pumps Handling Storm Water and Sewage

Specified Conditions	*Actual Performance by Model Test*
42000 GPM at 35' TDH	46000 GPM at 35' TDH
38500 GPM at 29.4' TDH	41000 GPM at 29.4' TDH

3 of these units each driven by 500 HP, 400 RPM, 4000-volt synchronous motors

2 units each driven by 2-speed synchronous motors, 500 HP at 400 RPM or 350 HP at 360 RPM

Overall Height 2-Speed Units — 18' 10"; Size Suction Opening — 42" dia.; Size Discharge Opening — 42" dia. Units entirely self-contained. All bearings force-feed oil lubricated. Extra-rigid motor support.

MORRIS MACHINE WORKS
Baldwinsville, N.Y.
Sales Offices in Principal Cities
MORRIS *Centrifugal Pumps*

Sewage Disposal Screen Meets Treatment Problems

A self-cleaning sewage disposal screen for all primary treatment—compact, durable, and adaptable.

A self-cleaning sewage disposal screen is manufactured by Green Bay Foundry and Machine Works, Green Bay, Wis. Called the North sewage disposal screen, the Trunion model is built in four sizes, 4, 6, 8, and 10 feet. It is employed as a self-cleaning screen for all primary treatment, meat packing wastes, and provides a solution to cannery waste problems.

The rotary, self-cleaning fine screen is designed to segregate solid and liquid constituents from waste materials. There are six sections of wire mesh on the screened cylinder of the 4-foot unit, and 14 on each of the larger ones. The screen's large drum rotates at 4 rpm and is continuously cleaned by shower sprays.

Each standard unit is equipped with a watertight wooden tank to receive all the water sifting through the screened drum. The screens are driven by mounted overhead drives and chain driven from the main drive shaft.

This machine eliminates all orifice and pump plugging, reduces septicity of raw sewage by eliminating a detention period for the settling of solids, is noiseless in operation, permits reclamation of valuable waste products, and prevents pollution of streams, rivers, and lakes.

Graybar Director

A. H. Nicoll, president of the Graybar Electric Co., Inc., 420 Lexington Ave., New York 17, N. Y., announces the election of R. W. Kimberlin to the firm's board of directors.

Mr. Kimberlin has been San Francisco district manager since 1950. He joined the employee-owned company in 1922 as a sales record clerk in San Francisco. During his 24 years with Graybar he served as assistant telephone and lamp specialist, salesman, telephone specialist, merchandising manager ,and manager of the Salt Lake City branch.

When Your Lights GO OUT...

Big Beam
Automatic EMERGENCY LIGHTS
GO ON *Instantly*

For:
Government, Military and Civilian Institutions, Office Buildings, and Bomb Shelters

BIG BEAM
Model No. 2-AD SPECIAL

In panic, disaster, air raids, or whenever a failure occurs in your regular lighting service Big Beam Emergency Lights will give instant, automatic light. Two 6-inch floodlights, operating on a 9-volt standard dry battery give powerful light over a wide area.

No special wiring. Plugs into any conveniently located 115-volt lighting outlet, either AC or DC—a Must for Civilian Defense.

Write for Complete Details on This and Other Models

U-C LITE MANUFACTURING CO.
1063 W. Hubbard St., Chicago 22, Ill.

LOOKING FOR WIRE AND CABLE?

Highest Quality
FIRE ALARM
TRAFFIC CONTROL
and
STREET LIGHTING
CABLE

IMMEDIATE DELIVERY

Priced substantially BELOW MARKET

Huge purchases from government stocks enable us to offer unusually low prices to municipalities. This high quality cable is available for immediate delivery from world's largest stock.

May we quote on your requirements?

COLEMAN
CABLE AND WIRE CORP.
4515 W. Addison Street
CHICAGO 41, ILLINOIS

Surfa-slick *Patent Applied for*
SELF-HEATING ASPHALT SMOOTHING IRON

Municipalities! This lightweight, rugged, simple, time and money saving smoothing iron will pay for itself in a few days' use.

No more building and tending fires on your asphalt jobs!

HOT IN TEN MINUTES **HOT** ALL DAY LONG

- RUGGED
- SIMPLE
- SAFE
- ECONOMICAL
- LABOR SAVING
- COMPACT

Dealer inquiries requested

J. E. WOODS MFG. CO.
1516 First St., San Fernando, Cal.

What is 3-AXLE SMOOTHNESS?

The answer to this question is a matter of record. By actual test, it is the highest degree of road surface smoothness ever attained with tandem roller. A leading state highway department proved that the Buffalo-Springfield 3-axle tandem produces surfaces 50% smoother than the average obtained with conventional tandems of equal capacity. Also noteworthy, the same test showed that the 3-axle tandem averaged 60% more tonnage compacted than other units on the project. As a result, the specifications for asphaltic surfaces in this state now permit the use of one less tandem roller with each spreader, *provided* a 3-axle tandem is one of the rollers employed.

Still another state specifically requires the use of a 3-axle tandem on certain plant mix surfaces.

There's a reason for this greater work capacity and smoother rolling results. The two large diameter guide rolls and the drive roll of the 3-axle tandem are rigidly mounted in a position tangent to the same plane. Thus, when one guide roll strikes a high spot in the pavement, the other is lifted clear of the surface and its weight transferred to the rolls retaining surface contact. Result—maximum compactive effort where it is needed most—on the high spots in the surface.

You can learn more about this transfer-of-weight principle and the many other exclusive features of the Buffalo-Springfield Model KX-25, 12 to 19 ton, 3-axle tandem from your nearest distributor. Why not call him today?

BUFFALO SPRINGFIELD
THE STANDARD OF COMPARISON
SPRINGFIELD, OHIO

Mail This Coupon Today

THE BUFFALO-SPRINGFIELD ROLLER CO.
Dept. A-5, Springfield, Ohio

☐ Please send me Catalog S-56-49 describing the right model for my requirements. ☐ Notify Distributor to call.

NAME .....

ADDRESS .....

CITY ..... STATE .....

Increases Load Travel Of Utility Hoist

A 12-inch boom extension which will increase load travel of the Unit utility hoist from 77½ to 97½ inches has been announced by the Unit Mfg. Co., 1229 Harmon Place, Minneapolis 3, Minn. The increase in load movement permits special handling operations, such as setting pipe, working in manholes, hand-setting water hydrants, reaching over obstructions.

A new sheave attachment (optional at extra cost) increases load travel an additional 25%. Lifting is done by a wire cable which is secured to a clevis attached to the lower end of the hydraulic cylinder and run through a sheave at the boom end.

This 12-inch boom extension increases load travel of the unit utility hoist from 77½ to 97½ inches.

New Color-Sound Film On Bituminized Fibre Pipe

The Fibre Products Division of the Line Material Co., 700 W. Michigan St., Milwaukee 1, Wis., manufacturer of L-M fibre sewer pipe, announces the availability of a new color-sound 16 mm. motion picture on its line of bituminized fibre pipe.

Entitled *Pipe Schemes*, the picture runs 12 minutes and is obtainable for showing to interested groups by contacting local representaives of the firm, or by writing to W. M. Bloom, sales manager of the division.

The film is slanted particularly toward the plumber's craft. It is a "how to do it'" production, but also takes the viewer on a brief tour through L-M's Fibre Products plant at Barton, Wis., illustrating manufacturing, testing, and quality control procedures. Of interest to plumbing contractors is the part which deals with actual installation of an ideal septic tank layout, the running of house-to-street sewer lines, and an illustrated description of the many uses of this versatile, non-corrosive pipe.

EVERY Leece-Neville PRODUCT

A Gilt Edged Investment

For over 40 years Leece-Neville Generators, Cranking Motors, Regulators, Relays and Switches have set the standards on Buses, Trucks and Cars...wherever rugged construction and better than average performance is required.

NOW ANOTHER L-N BLUE CHIP INVESTMENT

A Leece-Neville Alternator continues to pay dividends long after the car or truck on which it was first installed has gone to the junk yard. The Leece-Neville AC-DC Alternator System delivers 25 to 35 amperes with engine idling... saves batteries, gas, oil, engine wear. There are L-N Alternators rated at 50 to 175 amps. Practically a lifetime unit, the L-N Alternator can be shifted to a new vehicle every time the old one is traded in. For all the facts, write The Leece-Neville Company, Cleveland 14, Ohio.

Leece-Neville

HKP

NEW!

ESSENTIAL EQUIPMENT for EFFICIENT STREET AND HIGHWAY MANAGEMENT!

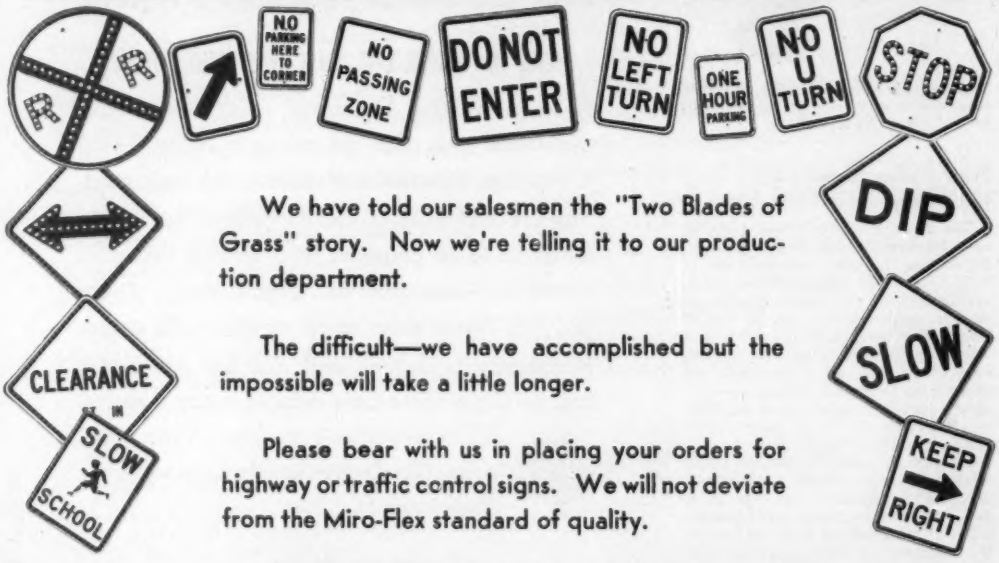
PORTER
HYDRAULIC
METAL POST STRAIGHTENER

Saves valuable man-hours by efficiently and quickly straightening metal posts. Used extensively by states, cities, counties and towns for straightening parking meter posts, highway signs and metal fence posts of all kinds. Pays for itself over and over again!

Powered by a 5-ton hydraulic jack with all the necessary attachments for a quick efficient set-up. Simple, safe and easy to operate! Fully portable . . . entire unit weighs only 30½ lbs.

See your supplier or write direct for prices and further information.

H. K. PORTER, INC., Somerville 43, Mass.
Manufacturers of PORTER CUTTERS, PORTER PRUNERS and PORTER-FERGUSON Auto Body and Fender Repair Tools



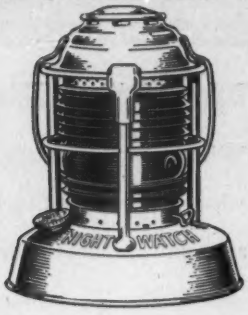
We have told our salesmen the "Two Blades of Grass" story. Now we're telling it to our production department.

The difficult—we have accomplished but the impossible will take a little longer.

Please bear with us in placing your orders for highway or traffic control signs. We will not deviate from the Miro-Flex standard of quality.

MANUFACTURED BY
MIRO-FLEX CO., INC.
1824 EAST SECOND STREET—WICHITA, KANSAS

Safety Lantern Projects Parallel, Vertical Beam



A safety lantern that projects a parallel, vertical beam of great intensity has been introduced by the R. E. Dietz Co., Syracuse 1, N. Y. Called the Night Watch lantern, this device projects a pencil beam signal visible at the farthest possible distance. The manufacturer recommends it for use by municipalities, special districts, utilities, contractors, shipping and industry.

According to the firm, the fresnel globe, molded with optically correct prisms in echelon, is scientifically designed to concentrate the light rays and project them in a parallel, vertical beam, while the average lantern spreads light in horizontal rays in a circle of wide proportions but to a comparatively concentrated area.

A feature of the Night Watch is the trip-lock to release the chimney. Two horizontal guard wires protect the globe. Because of the intensifying power of the fresnel globe, only a small burner and flame are required. The lantern is 8 inches high with 6-¾inch diameter at its sturdy, non-tip base.

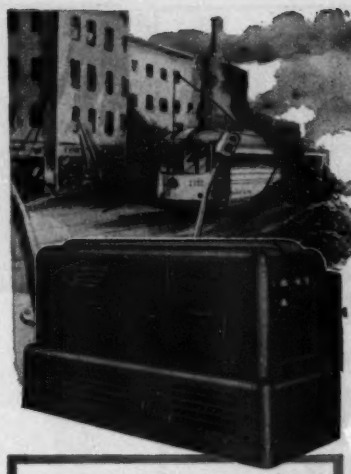
Eastern Metal Expands

Expanded operations have been announced by Eastern Metal of Elmira, Inc., Elmira Heights, N. Y., manufacturer of steel safety signs, according to Burleigh M. Names, president. Recently incorporated, the organization had been known as Eastern Metal Products Co.

The firm produces a new type of safety standard for effective warning of motorists approaching a work area. The durable angle iron frame opens into a wide base so that the standard will not blow over in strong winds or in the backwash of passing trucks. Two red flags mounted diagonally complete the device's appearance. The free-swinging sign in yellow has black lettered legends on both sides. Several different legends are available and can be reflectorized with Scotchlite for night or cloudy day display.

The unit is 27 inches high, 18 inches wide, and weighs 13 pounds without flags.

Mr. Names reports that the new A Standard will be displayed at safety shows in New York City, Columbus, Syracuse, and Chicago.



ONAN
Emergency
Electric Plants
for
Civil Defense

No matter what happens to central station power during a bombing attack, electricity for essential defense needs is always available with Onan Electric Plants. Onan units, mounted on truck or trailer, or carried in the trunk of a car, can be rushed to any point where power and light are needed. Sturdy and dependable, Onan Electric Plants are an important link in a city's defense against disasters of any kind.

Write for folder

Power & Light for Every Need

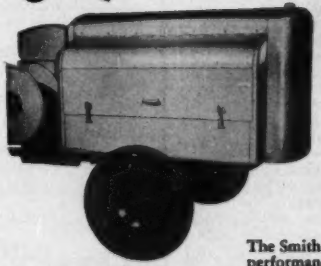
Portable, Mobile, or Stationary
400 to 35,000 watts. A.C. or D.C. models.

Onan PRODUCTS

D. W. ONAN & SONS INC.
7641 UNIVERSITY AVE., MINNEAPOLIS, MINN.

Compressed Air to handle most jobs For Less!

smith
MODEL 105-P
AIR COMPRESSOR



Model 105-P. Has self-starter, battery ignition, voltage regulator, large radiator capacity with thermostat for quick warmup.

The Smith 105-P delivers smooth power, gives long performance, and will handle most of your compressor work, for less! Powered with Chrysler Ind. 15 Industrial Engine with 377 cu. in. displacement. Delivers 105 cu. ft. per minute. Has sodium cooled valves and Stellite valve seats in engine. Stainless steel disc type valves and Manganese Bronze seats in compressor. Heavy duty with light weight (2100 lbs.). *Write for literature and prices.*

Also the SMITH 70-P AIR COMPRESSOR

GORDON SMITH & CO. 425 COLLEGE ST. BOWLING GREEN, KY.

Undecided?

Don't debate any longer
specify a
BARTON-AMERICAN FIRE PUMP
on your next fire truck

MODEL DMB

● Whether you're in the market for a front mounted or a midship mounted fire pump be sure to specify Barton-American—the finest fire pumps made. Each Barton-American fire pump is built to rigid specifications and to really do a job. Each meets all Underwriters' tests for conventional capacities and pressures PLUS sufficient pressure for fog gun service. There is a model built to meet every need and to fulfill your every requirement.

Write today for information about our UA-50 front mounted pump, our Duplex-Multistage (DMA) midship mounted fire pump and our four-stage DMB as shown above.

ONLY THE BARTON-AMERICAN MODEL DMB HAS ALL THESE EXCLUSIVE FEATURES

1. Maximum flexibility in operation. 2. Low engine speeds due to four-stage construction. 3. One-point oil lubrication for all gears and bearings. 4. Direct gear drive — No mechanical clutches. 5. Sufficient reserve capacity for 1½" or 2½" lines even with fog guns in operation.

WRITE FOR BULLETIN 8734 TODAY

AMERICAN-MARSH PUMPS

BATTLE CREEK MICHIGAN

GET THOSE WEED ROOTS!

GO TO THE ROOT OF YOUR WEED PROBLEM WITH THESE DOLGE PRODUCTS

Dolge SS Weed Killer

Where no vegetation whatever is desired such as your parking places and walks. Penetrates deep down to plant roots and kills. Sterilizes the soil, preventing normal sprouting of wind-blown seeds. Weeding the thorough, modern chemical way eliminates backbreaking toil and saves the cost of many labor-hours.

E.W.T. Selective Weed Killer (2-4-D)

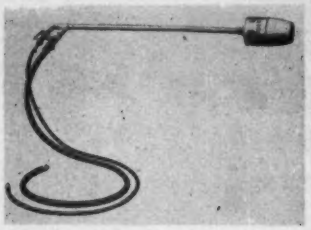
The efficient way to control weeds on your seeded areas. Works its way down into the roots of brush, dandelion, plantain, poison ivy, ragweed, sumac and other obnoxious plants, but does not injure most turf grasses.

Please write for descriptive literature explaining how these tested DOLGE products can best be used for your weeding requirements.

dependable
DOLGE
WESTPORT, CONNECTICUT

Portable Gas Torches

The new Hauck portable gas torch operates indoors or outdoors in any weather. According to the Hauck Mfg.



Portable gas torch—suitable for continuous operation or intermittent use.

Co., combustion engineers and manufacturer of oil and gas burners and equipment, the torch's steady powerful heat can be depended upon at all times. It is employed for heating, melting, thawing, and drying, and operates with compressed air at 40 pounds psi or more.

The No. 734 model is fitted with gas and compressed air hose. Designed on the Hauck venturi injector principle, it is built without coils and requires no preheating. The torch generates heat or 2700° F. flame temperature, cannot clog or carbonize.

Materials used in the Hauck portable gas torch are steel, heat resisting cast iron, and brass. The models are furnished with heavy bronze gas and air cocks with union connections.

Among the other Hauck equipment for construction and maintenance work are portable heavy duty blow torches, pre-heaters for acetylene welding, concrete and water heaters, and tar and asphalt melting kettles.

Bulletin No. 1070, describing the portable gas torch, may be obtained from Hauck Mfg. Co. located at 112-122 10th St., Brooklyn 15, N. Y.

Manufacturers to Entertain At Section Meetings

Clubroom entertainment for section meetings will be sponsored by the Water and Sewage Works Manufacturers Association, Inc., 170 Broadway, New York 7, N. Y., on the following schedule:

Michigan Sewage and Industrial Wastes Association, June 4-6, Pantlind Hotel, Grand Rapids, Mich.; New England Sewage Works Association's joint meeting with New York State Sewage and Industrial Wastes Association, June 7-8, Kimball Hotel, Springfield, Mass.; New England Water Works Association's outing, June 13, Marshall House, York Harbor, Maine; Alabama-Mississippi Section A.W.W.A., Sept. 24-26, Buena Vista Hotel, Biloxi, Miss.; Pennsylvania Water Works Association, Oct. 23-26, Claridge Hotel, Atlantic City, N. J., and Florida Section, A.W.W.A. and Florida Sewage Works Association, October 28-31, Sheraton Plaza Hotel, Daytona Beach, Fla.

Your Town

Deserves THE BEST
in Residential and Business
LIGHTING (INVEST FOR THE FUTURE)

Change GLOOM into GLEAM—make Better Lighting your Civic Scheme! The dollars you invest in well-planned lighting will work overtime to promote business and pride in home ownership. Take a quick survey now—your streets—your parks and playgrounds—your airport—CAN YOU VISUALIZE the change a good lighting job will do? Call on us for plans and help—we're "on the beam"!

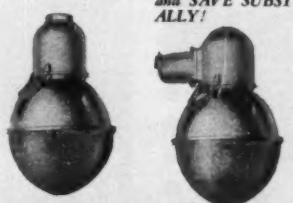
Revere ELECTRIC MFG. CO. CHICAGO, ILL.
EVERYTHING IN LIGHTING

WHITE-WAY PYLON-LITES

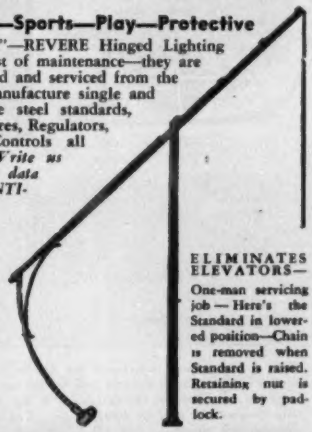
for maximum horizontal light distribution—the fluorescent columns create a lane of lights—beautiful to behold! Operate economically and efficiently under all weather conditions. For series or multiple circuits.

Street—Airport—Sports—Play—Protective

"Easy on the budget"—REVERE Hinged Lighting Standards lick the cost of maintenance—they are designed to be cleaned and serviced from the ground. We also manufacture single and double arm one-piece steel standards, a full line of Luminaires, Regulators, Transformers and Controls all from one source. *Write us Today for Complete data and SAVE SUBSTANTIALLY!*



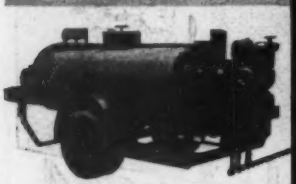
LUMINAIRES



ELIMINATES ELEVATORS—
One-man servicing job — Here's the Standard in lowered position—Chain is removed when Standard is raised. Retaining nut is secured by padlock.

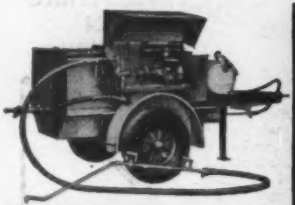
REVERE ELECTRIC MFG. CO.
6015 BROADWAY — INDOOR AND OUTDOOR LIGHTING EQUIPMENT FOR EVERY NEED — CHICAGO 40, ILL.

LITTLEFORD *means low-cost road repair*



model 101 UTILITY SPRAY TANK

When roads need repair, there's no Utility Black-Top Unit with the versatility of a Littleford 101 Utility Spray Tank. If you wish to use a Hand Spray for large patch jobs, it's available; if small application work is needed, there is a 10 ft. Spray Bar to do the work; and for crack filling and small patch work, there's a Pouring Pot Outlet. The 101 is a combination of three units in one. Write for Bulletin No. 5.



model 84-HD TAR AND ASPHALT KETTLE

With a Motor Spray Attachment, the 84-HD Kettle is the most modern black-top road patching unit on the market. The labor saved in operating this kettle makes it the lowest cost unit ever designed for road or runway work. One man is all that's necessary for operation. 84-HD heats faster and sprays faster, operates more efficiently. Write for Bulletin No. 1.

LB LITTLEFORD

BLACK TOP ROAD MAINTENANCE EQUIPMENT SINCE - 1900

LITTLEFORD BROS., INC.
500 E. Pearl St., Cincinnati 2, Ohio

THE
Dualtronic
COMBINATION
PIPE LOCATOR
and
LEAK
DETECTOR
Since first introduced, the "Dualtronic", has met with instant success with Municipalities and Utilities throughout the world, because of the time and labor savings effected by one instrument doing the work of two as efficiently and effectively. Ruggedly built! Lightweight! One man operation! The "Dualtronic", is the answer on how to cut costs 50%!
Proven Quality
GOLDAK
FEATHERWEIGHT
MODEL 87
PIPE
LOCATOR
Guesswork eliminated. Pin-point location of pipes, mains, gates, tees, etc. One man operation, total weight 11 lbs! Strong, positive location signal guaranteed by Licensed circuits and Microtuning, exclusive with Goldak. Lasts a lifetime, guaranteed performance. Write for FREE literature!
GOLDAK

Retires After 53 Years With Engineering Firm

After 53 years of continuous, active consulting engineering practice, Robert E. McDonnell, cofounder and senior member of the Burns and McDonnell Engineering Co., 95th and Troost Ave., Kansas City 2, Mo., retired on April 2d. An advocate of pure water, low-cost power, and clean streams, he founded the firm with Clinton S. Burns.

R. E. McDonnell

The organization has served 887 cities with public works, such as water, sewerage and lighting systems and were designed and built in 45 states, as well as in Alaska, Canada, and Mexico.

The firm has specialized in the municipal utility engineering fields of water, sewage, sewerage, and power and during the war designed and built such government projects as cantonments, air bases, hospitals, and industrial utility installations.

Mr. McDonnell plans to remain active as a consultant to the engineers in his firm.

Vapor Steam Cleaner

The new Auto-Steam heavy-duty vapor steam cleaner is manufactured for use in automotive, farm, aviation, industrial and other fields. It provides 100 pounds of steam pressure in 90 seconds, has a completely visible panel control, is completely automatic, and has a scientifically balanced swivel gun with gun-control shut off.

Equipped with a heavy-duty ½-hp motor, the machine requires no premixing compound, and has an economical sootless atomizing burner with flash-type sectional boiler.

According to the manufacturer, Aeroil Products Co., Inc., 5 Wesley St., S. Hackensack, N. J., Auto-Steam is scientifically balanced for maximum cleaning performance—at medium pressures, it produces a thoroughly penetrating, saturated solution, hot enough to clean perfectly without ever burning, and wet enough to carry off the residue.

Huber Distributor

The Huber Mfg. Co. of Marion, Ohio, has named Western Machinery & Engine Co., of St. Louis, Mo., as distributor for Huber's road-building and maintenance equipment in eastern Missouri, and central and southern Illinois. The distributing firm has its main office at 5075 Manchester Ave., St. Louis, and branch office at 125 E. McCord St., Centralia, Ill.

BRAXMAR BADGES

Standard Badges Since 1879

Write for circular illustrating badges for Police, Fire and other City, County and State Officials

John O. Veit, Pres.

C. G. Braxmar Co., Inc:
216 E. 45th St., New York 17, N. Y.

Air Curtain Guide Plates

For Perfect Traffic Lines:

AIR CURTAINS, basic feature of all Kelly-Creswell Equipment, make possible the application of clean-cut, attractive lines without coming in contact with the surface.

Special striping guns by DeVilbiss, air actuated traction and pressure-cleaning equipment also feature K-C equipment. These are the reasons why more Highway-Zone-marking material is applied through K-C equipment than through any other make.

TRUCK-MOUNTED AND PORTABLE EQUIPMENT AVAILABLE.

There is a Kelly-Creswell Model that will solve your zone-marking problems.

KELLY-CRESWELL CO., Xenia, Ohio

KILL INSECT PESTS with
IRON AGE
MIST SPRAYERS

Users everywhere praise the performance of Farquhar Iron Age Mist Sprayers on golf courses, parks, playgrounds, swimming pools, tourist courts, picnic grounds, and other places where insect pests are a problem.

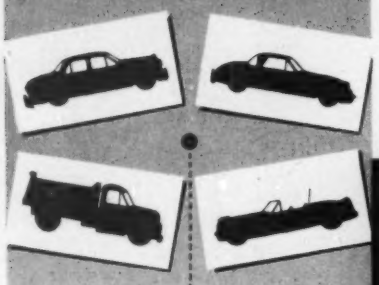
Here are the outstanding features of the Farquhar Iron Age Model 125: 22 hp, 4 cylinder Wisconsin engine drives sturdy cast aluminum axial flow fan at 87% efficiency, delivering 6,000 to 11,000 cubic feet of air per minute at 90 to 125 mph. New, efficient spray jets meter *exactly* the right amount of mix, either oil or water, to center of high velocity air stream, insuring complete misting of concentrate. Spray jets can be changed quickly to alter droplet size. Turret rotates 360° for full control of air blast. 125 gallon tanks are available with trailer or skid mounting. Comfortable spring seat for operator.

Find out *now* how Farquhar Iron Age Mist Sprayers can make your pest control program *far more effective at less cost.* Write A. B. FARQUHAR COMPANY, 3536 Duke St., York, Penna.

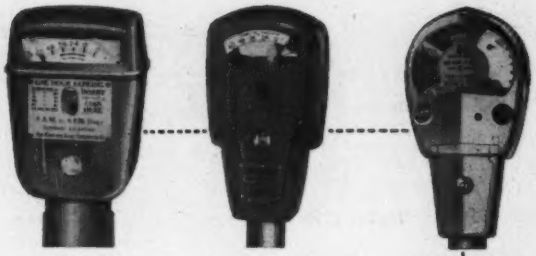
Farquhar
IRON AGE
YORK, PA.
POTATO AND VEGETABLE PLANTERS · TRANSPLANTERS
SPRAYERS · DUSTERS · POTATO DIGGERS · WEEDERS
MANURE SPREADERS · CONVEYORS · [illegible]

PLANT AND SPRAY THE IRON AGE WAY

Different models
DIFFERENT NEEDS



Write for data to
THE KARPARK CORPORATION
CINCINNATI 6, OHIO



The Steel Head
SUPERIOR
Supreme in strength; in resistance to damage and vandalism.

The Low Cost
HUSKY
Makes Karpark dependability available at a minimum investment.

The Versatile
TWIN-O-MATIC
One installation times two cars; has every wanted feature.

The "First Family" of Parking Meters

KARPARK

A METER FOR EVERY PARKING NEED

The Adaptable UNIMATIC
Takes care of any parking situation—beautifully and efficiently.

ATTENTION MANUFACTURERS!

TOP REPRESENTATION FOR YOUR PRODUCT IN ILLINOIS, INDIANA, OHIO AND KENTUCKY

by experienced factory representative

Specialized attention can be given two additional lines with appeal to municipalities, railroads and utilities. Small machines or repeat products of short lines preferred. Will consider exclusive territory propositions only. Invoicing or commission deals optional. Will assume circular mailing costs in territory and offer free assistance with ideas and layout on advertising matter. Satisfactory results, or substantially increased business, guaranteed.

Box 346, THE AMERICAN CITY
470 Fourth Ave., New York 16, N. Y.

CUT *YOUR* SWEEPING COSTS *75%*
WITH
Wilshire POWER SWEEPER

Picks up everything from cigarette butts to pop bottles in one easy operation! Write today for dealer nearest you and **FREE on-Your-Job DEMONSTRATION.**

For dealer nearest you, write Dept. C-5

Wilshire
POWER SWEEPER CO.
526 W. Chevy Chase Drive
Glendale 4, Calif.

Sweeping the Country since 1940!

Lake Shore Markers OF *Lifetime* Aluminum

CHOICE OF MANY PROGRESSIVE CITIES

•RUSTPROOF •DURABLE •ATTRACTIVE
DAY AND NIGHT VISIBILITY

ILLUSTRATED
2-1/2 - 2 WAY ASSEMBLY
WITH BLOCK HOUSINGS

Lake Shore Markers
DIVISION
LAKE SHORE PATTERN WORKS
654 WEST 19TH ST.
ERIE, PA.
Write for Illustrated Catalog

ALUMINUM IS *Scarce!*
TO INSURE DELIVERY OF SIGNS
PLACE ORDERS NOW!

Gasoline Chain Saw Has Fast-Cutting Speed

A new 27-pound, 4-hp, gasoline chain saw is reported by the Homelite Corp., 104 Riverdale Ave., Port Chester, N. Y. The manufacturer states that the new model 26LCS is lighter, more powerful, and is a one-man saw that does the work of a two-man saw.

Fast-cutting speed is the result of two unique features: a narrow-kerf Homelite chain which does less waste cutting and requires less power to drive, and an efficient Gilmer belt drive which eliminates drive gears that eat up engine power.

The machine can be used for felling, bucking, undercutting, or notching. Its perfect balance and simple pivot action make it easy to handle on all cuts. Automatic centrifugal clutch stops chain when engine idles and prevents overload when chain binds in cut. Concentric-bowl carburetor permits operation at extreme angles.

A built-in engine governor keeps engine from racing when saw is out of cut, and prevents excessive wear and stresses.

A wide range of blade sizes available for the new Homelite saw are: 18, 23, and 30 inches for one-man straight blades; 23, 30, and 42 inches for two-man straight blades, and 19 and 25 inches for bow saws, for one- or two-man operation.

The Right Sand For Water Filters

The design of water filters is undergoing changes in recent years resulting in uses of higher rates of filtration, and requiring greater care in the selection of sand and gravel. Northern Gravel Co., P. O. Box 307, Muscatine, Iowa, has prepared filter sand especially screened to meet these higher rates and still insure good purification results. The sand and gravel may be delivered either in bags or in bulk, and are free from river contamination and foreign matter. The company will deliver sand and gravel to meet the standard water-filter rates.

The company announces its readiness to assist water-filter plants in the selection of the right grading of sand and gravel for the greatest plant efficiency and water purity.

On New Rochelle's thoroughfares it's

AMPLEX STREET LIGHTING LAMPS

The vastly improved street lighting system in New Rochelle, N. Y., recently installed under the supervision of Mr. E. P. Byrne, the city's Electrical Superintendent.

IN EVERY PART of America, more and more municipalities and public utilities are changing over to Amplex Street Lighting Lamps. Experience shows that these lamps afford notably superior lighting and maintain an unsurpassed degree of light output during their extra-long service lives. Specially designed and built to withstand the constant vibration and jolts of traffic, they bring outstanding savings on every installation.

There's an Amplex street lighting lamp of the right type and wattage for every purpose. And for the last word in ruggedness and dependability Amplex **Weatherproof Bulbs** are your topmost specification. Made of "hard glass", these moisture-resistant lamps stop failures caused by climatic conditions . . . bring down long-run costs.

For full facts about Amplex Street Lighting Lamps and their superiority on the job, write Amplex Corporation, Dept K-5, 111 Water Street, Brooklyn 1, New York.

AMPLEX

Sealed-Beam Reflector Lamps, Colorbeam Lamps, Spotlites and Floodlites, Industrial Infra-Red Heat Lamps, Vibration and Rough Service Lamps, Street Lighting Lamps, Traffic Signal Lamps, Incandescent Lamps, Fluorescent Tubes, Display Accessories.

Alert Your Zones with

SIGNALPHONES

Keystone Signalphone Air-Raid Horn (Adopted During World War II By National Office of Civilian Defense)*

Price **$29.95** f.o.b. Pittsburgh, Pa. (Regulator Valve, manual or remote solenoid Control Valve extra).

Ideal Air-Raid Warning Equipment

★ **LOUDEST:** Deafening (113 decibels at 100 feet), sustained blast or coded warning overwhelms other emergency and vehicle horns, sirens and noises.

★ **NON-DIRECTIONAL:** Equal intensity in all directions without rotation of horn.

★ **EXISTING FACILITIES ADEQUATE:** Operates on ordinary air compressors found at any gasoline service station, public building, industrial plant, etc. Needs no extra storage tank. Requires only 15-50 lbs. pressures—consumes only 23 cubic feet free air per minute.

★ **INSTALLATION:** Comprises merely a pipe connection with the compressor unit.

★ **Delivery:** Immediate

*Nat'l Bur. of Standards Test

Write for Exclusive Sales Territories

Keystone Signalphone Company
53 Marion Street **Pittsburgh 19, Pa.**

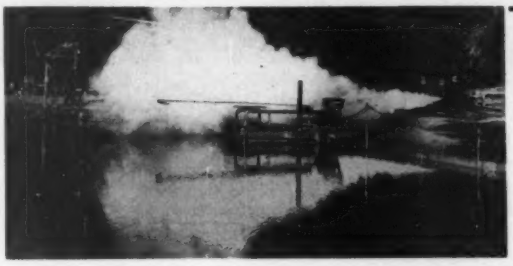
YOU CAN'T BE TOO CAREFUL

Back siphonage occurs in unexpected places and situations with its resultant contamination of drinking water.

The hazard to public health caused by the pollution of drinking water through plumbing back-siphonage is absolutely removed by the installation of this new Murdock Outdoor Drinking Fountain.

In this fountain there is no cross connection between supply line and outside sources of pollution.

The Murdock Mfg. & Sup. Co.
Cincinnati 2, Ohio



Before you buy an applicator–

CHECK TIFA

Look over the field before you choose a fog applicator to eliminate flies, mosquitoes, other insects. Check these points: Is range of control of droplets from 1/2 to 200 microns? Can the unit handle solutions, emulsions, suspensions? How many insects does it kill per dollar?

You'll find TIFA meets every specification . . . saves you money in overall operation. TIFA carries the Underwriters' Listing Seal . . . is backed by 10 years of manufacturing experience!

You can use TIFA wherever your people congregate and insects annoy them. This efficient machine discharges insecticides in a *true, clean fog* which clings to all objects . . . permeates tiniest crevices. It's quick, compact, self-powered.

TODD INSECTICIDAL FOG APPLICATOR

Carrying Underwriters' Listing Seal

DEATH-DEALING FOG FOR INSECTS

Write for illustrated folder on sensational TIFA—full details, official comments.

For better health and living, put TIFA to work in your community!

COMBUSTION EQUIPMENT DIVISION

TODD SHIPYARDS CORPORATION

81-16 45th Avenue, Elmhurst, Queens, N. Y.

Byron Jackson Co. Names Carl Blom Vice-President

Carl Blom has been elected a vice-president of Byron Jackson Co., P. O. Box 2017 Terminal Annex, Los Angeles 54, Calif., according to an announcement made by E. S. Dulin, president.

Carl Blom

Joining the company in 1924 as a pump design engineer, Mr. Blom has been serving as chief engineer of the pump division since 1940.

Among the important pumping projects which include units designed by Mr. Blom are: the world's largest pumps for Grand Coulee Dam, six units, each to deliver 720,000 gpm at 300 feet when driven by its 65,000 hp electric motor; 27 oil-line pumps which are moving oil 1,067 miles through the world's largest oil lines from the Persian Gulf to the Mediterranean, and pumps to move oil from Edmonton to Lake Superior through the new $90,000,000 Canadian line.

In 1932 he participated in the design and supervised field installation of the pumping plant for the A. T. & Santa Fe Railway Co. at Grand Canyon. These Byron Jackson pumps lift water 3,150 feet to the rim of the canyon, representing the highest physical lift for centrifugal pumps in the world. During World War II, Mr. Blom directed design and manufacture of pumping units, termed "invasion pumps" which were employed by the Western Allies for handling oil, gasoline, and water in North Africa and the invasion of Europe, and pumping gasoline from India to a point near Chungking. This project represented one of the longest pipeline systems in the world; with a total mileage of invasion pipe of 3,286 miles.

Outstanding in the central power station field is the BJ "double case" high-pressure boiler-feed pump, designed by Mr. Blom, which is used extensively throughout this country.

High Pressure Spraying Unit

For insecticide, roadside, and tree spraying, the Comfort Equipment Co., Kansas City, Mo., has added the Comfort Special self-contained high-pressure unit for spraying at pressures to 300 pounds. It is pointed out that the unit is designed for easy attachment of the firm's high-pressure spray gun or its boom jet single or double nozzles. The gun and boom jet attachments are sold individually or together with the unit.

According to the manufacturer, the double boom jet unit is capable of a maximum spray pattern 52 feet wide at 60 pounds' pressure with nozzles set at 4-foot height.

BONDED PERFORMANCE

"A Saving and Timely Public Service"

Taxpayers and public officials alike will be interested in this editorial from the Tampa (Fla.) Morning Tribune, March 8, 1951.

A Timely Public Service

We do not often single out a private business enterprise for special commendation, but it is sometimes fully merited. It is proper and just in the case of the timely public service given by the National Surety Corporation, in the case of the city's sewer system.

When the original contractor for a large part of the sewer construction job encountered financial difficulties and had to default on the contract, the surety company stepped in immediately upon the call of the city officials and prevented a complete stoppage of the work, which involved the disposal plant and eight outlying pumping stations. The company carried the payrolls and assured material dealers that past-due accounts would be protected.

Officials and engineers of the National Surety Corporation came promptly on the scene from the head office in New York and, with the cooperation of the local agent and the city officials, made a new contract with a strong local construction firm to take over and finish all the structures involved in the defaulted contract. It is not practical for all contractors to have sufficient financial resources to make owners safe from any loss, but it is practical and required by law that surety companies be financially able to indemnify the owners against any loss through default of contractors they insure. That's just what this company did in the Tampa sewer contract—and we commend it for giving a saving and timely public service to the city of Tampa.

NATIONAL SURETY CORPORATION

4 Albany Street, New York

The annual district managers' meeting of the Peerless Pump Division, Food Machinery and Chemical Corp., was held in Los Angeles. Personnel attending were: (left to right) J. F. Van Dam, E. H. Hansen, R. F. Foster, F. D. Widener, R. H. Hull, E. H. Lanthorn, B. A. Tucker, C. C. Cook, W. E. Griffin, G. D. Sickert, F. W. McCann, G. F. Twist, C. L. Nickel, J. C. Bonsall, J. H. Raths, V. L. Ray, C. H. Sorter, A. F. Barron, E. W. Lundy, S. M. Riordan, and J. B. Downie.

Peerless Pump Sales Discussed at Session

Plans under which Peerless pump sales for this year can exceed sales and service records set in the previous years were planned for the company's district managers at meetings held the week of March 12th in Los Angeles.

G. F. Twist, vice-president of the Food Machinery and Chemical Corp., Los Angeles 31, Calif., and general manager of the Peerless Pump Division, opened the annual meeting.

According to B. A. Tucker, divisional sales manager, members of the sales personnel are faced with difficult sales distribution and service problems arising from the unsettled state of markets, due to defense preparations and related influences.

Peerless engineers demonstrated production of new pump types.

Consulting Engineer

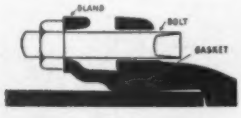
Richard E. Dougherty has become a consultant for the firm of Seelye, Stevenson, Value & Knecht, consulting engineers, and will have his offices with them at 101 Park Ave., New York 17, N. Y.

Mr. Dougherty had been a member of the engineering staff of the New York Central System. He is a member of the Commission on Renovation of the White House and a consulting engineer for the Trustee of the Long Island Railroad. Mr. Dougherty served as president of the American Society of Civil Engineers in 1948, and president of the Engineers' Joint Council in 1949.

PIPE LAYER'S
MAGIC WAND!

RATCHET WRENCH IS ONLY TOOL NEEDED TO LAY McWANE BOLTITE MECHANICAL JOINT PIPE

There's magic in a ratchet wrench when you lay McWane "Boltite" Mechanical Joint Cast Iron Pipe. A ratchet wrench is the only tool needed for one man to make "Boltite" joints. He simply slips the follower-ring and the gasket over the spigot end, then sockets the pipe, inserts the gasket into the stuffing box and bolts up the follower-ring for a bottle-tight, flexible joint. McWane Boltite pipe is furnished in sizes 2-inch through 12-inch, in 18-foot lengths. The follower-ring, gasket and bolts are interchangeable with any make of standard mechanical joint pipe. For further details, write McWANE CAST IRON PIPE COMPANY, BIRMINGHAM 2, ALABAMA.



Boltite pipe is used for water, gas, steam, oil, chemicals and other liquids. Gaskets are rubber compound, asbestos, duck tipped, and other materials for special services.

McWANE CAST IRON PIPE
Lasts for Centuries

W. G. Scholl Sales Manager of Allis-Chalmers Tractors

Willis G. Scholl has been named general sales manager of the Allis-Chalmers Mfg. Co.'s Tractor Division, Milwaukee 1, Wis., according to an announcement by R. S. Stevenson, vice-president in charge of the firm's tractor unit.

W. G. Scholl

An eastern territory manager of the division's sales force since 1947, Mr. Scholl supervised the industrial and farm equipment branch in the eastern part of the United States and Canada.

Mr. Scholl joined the firm in 1936 as a tractor salesman; was named assistant branch manager in Toledo in 1941, and became branch manager in that city in 1943.

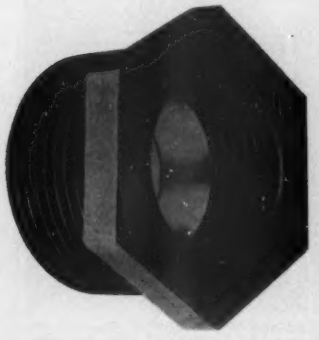
Molded Plastic Pipe Reducers, End Plugs

The Carlon Products Corp., 10225 Meech Ave., Cleveland 5, Ohio, reports the development and production of a new line of injection-molded plastic reducing bushings and end plugs for use with Carlon plastic pipe. The new units feature a hexagonal ring for positive wrench grip to facilitate installation. They utilize International pipe threads.

The plastic reducing bushings are available in 15 sizes from 2 inches by 1½ down to ¾-inch by ½-inch, and pipe plugs, obtainable in six sizes from 2 inches to ½-inch.

Molded from a single piece of thermoplastic material, the new fittings bring all of the inherent advantages of plastics to the field of water transmission. They are light in weight, can be installed rapidly, and easily, and assure leak-proof connections. According to the manufacturer, the equipment will never contaminate fluid, vapor, or gas which it conveys; smooth internal surfaces will not accumulate scale and reduce frictional loss to a minimum, and the fittings are resistant to rot, rust, and electrolytic corrosion.

Carlon reducing bushings can be employed to join sections of plastic pipe or to connect Carlon plastic lines with previously installed metallic systems.



Reducing bushings and end plugs of injection-molded plastic.

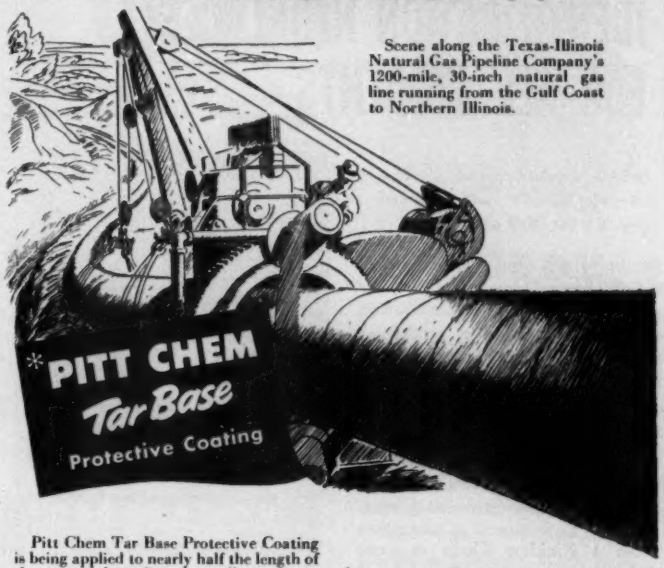
Largest Contract Placed For Sanitary Sewer Pipe

The American Vitrified Products Co., Cleveland, Ohio, recently was awarded a $1,753,000 contract for sanitary sewer pipe by the Jefferson County Commissioners, Birmingham, Ala. According to E. L. Miller, vice-president of the company, who made the announcement, the contract is the largest ever placed for pipe of this type.

The firm will furnish approximately 16 miles of reinforced concrete pipe, with clay liner plates, which will range in diameter from 10 feet down to 2½ feet. To handle the order, the company established a new plant in Birmingham.

The American Vitrified Products Co. has its main office in the National City Bank Bldg., in Cleveland.

*Life-Saving "Skin"** for another **BIG INCH** pipeline



Scene along the Texas-Illinois Natural Gas Pipeline Company's 1200-mile, 30-inch natural gas line running from the Gulf Coast to Northern Illinois.

Pitt Chem Tar Base Protective Coating is being applied to nearly half the length of the new steel pipeline that will soon carry gas from the Corpus Christi area to Joliet, Ill. It's one of the basic materials of a tough, metal-preserving sheath that will guard against underground corrosion and add years of life to the vital line.

This reinforced tar base coating provides more than just "life insurance" for this $120,000,000 transportation system. Because of its unvarying top quality—maintained by painstaking laboratory control—Pitt Chem pipeline coating performs better on application, serves better and longer underground.

This same *quality-assurance* is an important advantage when you use *any* of Industry's Most Comprehensive Family of Protective Coatings . . . whether it's a Pitt Chem Alkyd, Chlorinated Rubber, Vinyl or Phenolic base coating. For more information about these versatile, equipment-saving coatings, send for booklet, "Control Corrosion Through Pitt Chem Protective Coatings."

Protective Coatings Division

PITTSBURGH COKE & CHEMICAL CO.

GRANT BUILDING, PITTSBURGH 19, PA.

OFFICES: NEW YORK • CHICAGO • ST. LOUIS • TULSA • HOUSTON • LOS ANGELES • SAN FRANCISCO

"See . . . it's Bead Chain . . . just like yours"

NEW YORK CITY SCHOOLS ORDER IDENTIFICATION NECKLACES FOR ALL STUDENTS

BEAD CHAIN—used by the Armed Forces—will be worn by 2,000,000 students

An important move to safeguard the children of New York City was made by the Board of Education in ordering Identification Necklaces for all students in New York Schools. Each student will be issued a necklace carrying a tag on which is stamped the student's identity.

Taking a tip from Uncle Sam, who has had many years of experience with identification necklaces, the New York Board of Education chose a Kinkless Chain to carry the tags.

For years, our Armed Forces have selected Bead Chain for this duty. So flexible that it can't kink . . . attractive, smooth and comfortable . . . and very strong . . . Bead

Chain also is preferred for religious chains and many other products made for personal wear.

Other Cities in various parts of the country are providing Bead Chain Necklaces for identification purposes.

Write us for complete information about Bead Chain Necklaces.

The BEAD CHAIN* Mfg. Co.

24 Mountain Grove St., Bridgeport, Conn.

* TRADE MARK

District Manager

The De Laval Steam Turbine Co. of Trenton 2, N. J., has appointed T. A. Nilsen as district manager of a new Texas district office recently opened in the Esperson Bldg. in Houston.

T. A. Nilsen

A. N. Sarich, the firm's technical representative in Oklahoma and in Texas for several years, will continue in the same capacity with headquarters in the Houston office.

De Laval has long been associated with Texas industry with centrifugal blowers for catalytic cracking plants, mechanical-drive steam turbines for refineries and process plants, centrifugal pumps for all services, IMO rotary pumps for many oil-handling services and power transmission equipment. Of recent interest are the De Laval centrifugal high-pressure natural-gas compressors for Southwest major natural gas transmission lines.

Protective Lighting

Protective lighting for water works, pumping stations, electric plant installations, and other vital points in a city can be provided by the Revere Electric Mfg. Co., 6015 Broadway, Chicago 40, Ill. The equipment will illuminate boundary lines and other vital areas.

The Revere area lighter is a low-mounting rainproof unit and is used as a floodlight. Incandescent searchlights are designed for pilot house control or band control. The Fresnel wide angle throws a flat pancake-shaped beam, having a horizontal spread of 180° and a vertical spread of nearly 30°.

Also a Revere product is the one-piece octagonal steel standard, available with 4, 6, 8, 10, 12 or 14-foot, single or double, mast arms, and a line of Luminaires for series or multiple incandescent lamps or 400 watt mercury lamps.

The City Jail at Denver, Colo., uses the Revere area lighter, low-mounting floodlight, to provide ample light and protection against escape of prisoners.

Cylindrical Gas Holder Stores Sewage Gas

The Owl's Head sewage-treatment plant in New York City and the Hyperion sewage-treatment plant in Los Angeles both utilize the Wiggins cylindrical-type gas holders for storage digester gas for power production. Thus, one can say that this new, unusual, gas holder is now in use from one end of the country to the other. The gas holder is a product of General American Transportation Corp., 135 South LaSalle St., Chicago 90, Ill.

The gas holder has a floating cover that can drop to the floor of the holder when empty. The gas is sealed into the holder with a blanket of woven asbestos glass covered on both sides with synthetic rubber. This eliminates difficulties caused by evaporation or freezing frequently encountered with liquid seals.

The cover is adjusted by a self-aligning system of weights and pulleys. Its light weight reduces foundation costs. It can be build to economic capacities from 1,000 to 1,000,000 cubic feet and will store gas to pressures of 20 inches of water.

The NEW SKYLINE "90"
LOADER

FOR SNOW, LEAVES, DIRT, TRASH, SAND AND GRAVEL

SCOOPS · LOADS · DIGS · DOZES . .

Here's a fast-moving piece of equipment which will play a major part in keeping your city clean all year around. In the winter it scoops snow and ice, scatters sand on slick streets. In the spring you'll find the Skyline Loader scooping dirt and leaves from gutter, moving trash, loading sand and gravel for resurfacing roads, even handling garbage. You'll find your new Skyline "90" Loader the best investment your city ever made.

FOR FURTHER INFORMATION WRITE DIRECT

SKYLINE PRODUCTS
The SKYLINE CORPORATION
1521 McLEAN BLVD., WICHITA, KANSAS

The
SEWER SCOOTER*
* Trademark

Sewers Clean Themselves With a Sewer Scooter

100% self-propelled for 6" to 96" sewers—Is equally effective for all conditions and problems of sewer maintenance—completely cleans sewers of all sediments: rocks, gravel, sand and "hard-to-move" sludge.
Quick and efficient in operation. Investigate today! Ask for Bulletin.

Dealers—Some good territory open

Fitzgerald Engineering Co., Inc.
P. O. Box 289-G,
Coral Gables 34, Fla.

Save
man hours

with the EDDY
Mechanical Joint
VALVE

Since 1845 EDDY For Long Service

After excavation, two unskilled workmen with a ratchet wrench can install these valves in a jiffy . . . and every joint will be *bottle-tight* under pressure. What's more, they can do the work in a flooded trench, or in any kind of weather, for no caulking, no lead-melting is needed. Eddy Mechanical Joint Valves meet AWWA specifications, and are available in sizes 3" to 12" for use on both centrifugally-cast and sand-cast iron water pipes.

EDDY
VALVE COMPANY
WATERFORD NEW YORK
A subsidiary of James B. Clow & Sons

Photographed at the annual meeting of the advertising managers, sales promotion managers, and public relations directors of the members of the Diesel Engine Manufacturers Association are: (seated, left to right) Joseph Kenny, H. H. Kohenour, J. R. Roberts, W. H. Kuhlman, Henry J. Barbour, George B. Cushing, L. A. Harlow, Marty D'Amico, and Harvey T. Hill. Those standing (left to right) include: J. D. Grace, Don House, Frank A. Uniack, Volney B. Fowler, E. W. Manterfield, W. P. Durbin, James Love, A. L. Decker, Robert S. Ogg, George Frye, Howard P. Sharp, Allen P. Colby, W. R. Miner, Gene Bonnist, and R. P. March.

Diesel Engine Manufacturers Association Holds Annual Meeting in Chicago

The annual meeting of the advertising managers, sales promotion managers, and public relations directors of the members of the Diesel Engine Manufacturers Association took place Wednesday, April 4th, at the Union League Club of Chicago.

Chairman of the session was Henry J. Barbour, sales promotion and public relations manager of Fairbanks, Morse & Co., Chicago. In attendance were 30 executives of the various companies comprising DEMA, who discussed the problems of the respective fields in which they operate.

Volney B. Fowler, assistant to the president of the Electro-Motive Division, General Motors Corp., in charge of advertising and public relations, spoke at the luncheon. His subject was "Why America Needs More Diesel Locomotives Now."

Among the representatives were: Joseph Kenny, advertising and sales development department, Nordberg Mfg. Co.; H. H. Kohenour, advertising and sales promotion manager, The Buda Co.; J. R. Roberts, in charge of sales promotion. diesel section, International Harvester Co.; W. H. Kuhlman, sales promotion supervisor, International Harvester Co.; George B. Cushing, sales promotion manager, The National Supply Co.; L. A. Harlow, advertising manager, Fairbanks, Morse & Co.; Marty D'Amico, advertising department, The National Supply Co., and Harvey T.

What's the shape of your job?
BLAW-KNOX
Curb and gutter forms will handle it at lower cost
WHATEVER kind of street paving work you have, one set of Blaw-Knox Steel Street Forms handles every curb, curb and gutter or sidewalk job, from simple straight work to curved or serpentine shapes. Completely interchangeable, they can be used over and over in combinations to fit a wide variety of jobs. You get better quality work while saving time and money. Start your set of Blaw-Knox Steel Forms now — expand it any time to meet future requirements.
Straight curb forms
Curb and gutter forms
Sidewalk forms
Send for Bulletin 2259
BLAW-KNOX
BLAW-KNOX DIVISION of Blaw-Knox Company
2009 Farmers Bank Bldg., Pittsburgh 22, Pa.
New York • Chicago • Philadelphia • Birmingham • Washington • San Francisco

Hill, executive director, Diesel Engine Manufacturers Association.

Others attending included: J. D. Grace, advertising and public relations manager, Nordberg Mfg. Co.; Don House, advertising agency for Nordberg; Frank A. Uniack, public relations director, Cleveland Diesel Engine Division, General Motors Corp.; E. W. Manterfield, public relations director, American Locomotive Co.; W. P. Durbin, assistant advertising manager, Electro-Motive Division, General Motors Corp., and James Love, Leo Burnett Advertising Agency.

Also, A. L. Decker, vice-president of Buchen Co.; Robert S. Ogg, assistant general sales manager Lima-Hamilton Division, The Baldwin-Lima-Hamilton Corp.; George Frye, advertising agency for Worthington Pump & Machinery Corp.; Howard P. Sharp, sales development manager, Cummins Engine Co., Inc., Allen P. Colby, advertising manager, The National Supply Co.; W. R. Miner, Cummins Engine Co., Inc.; Gene Bonnist, advertising director, Cooper-Bessemer Corp.; and R. P. March, advertising department manager, Worthington Pump & Machinery Corp.

Tractor-Shovel For Crawlers

Speed and versatility are features of this new crawler tractor-shovel because of its several fast reverse speeds.

A new development in track-type tractor shovel has been announced by the Frank G. Hough Co., 710 Sunnyside Ave., Libertyville, Ill., manufacturer of front-end tractor loaders and Payloader tractor-shovels.

The machine is a complete, integrated design of track-type tractor and shovel rather than a front-end attachment for a conventional crawler tractor. The firm states that its chief basic advantages are that the engine is mounted at the rear to provide maximum balance and stability, the operator is located high and forward where he has full visibility, and there is a special full-reversing transmission that provides 4 forward speeds and 4 corresponding, but faster reverse speeds.

The machine's bucket capacity is 1 cubic yard. Boom arms and bucket-dump are each controlled by a pair of double-acting hydraulic rams, giving utmost utility, precise control, and freedom from maintenance. The horsepower is 67 with either gasoline or diesel engine available. Called the Model T12, this crawler tractor shovel is more versatile than others because of the great improvement in balance inherent in its design plus the several fast reverse speeds.

SIMPLEX
TYPE HF
WEIR METER

IT'S SIMPLEX
IT'S ACCURATE

The Simplex Type HF water float operated meter is ingeniously adaptable to measuring liquid flows across weirs.

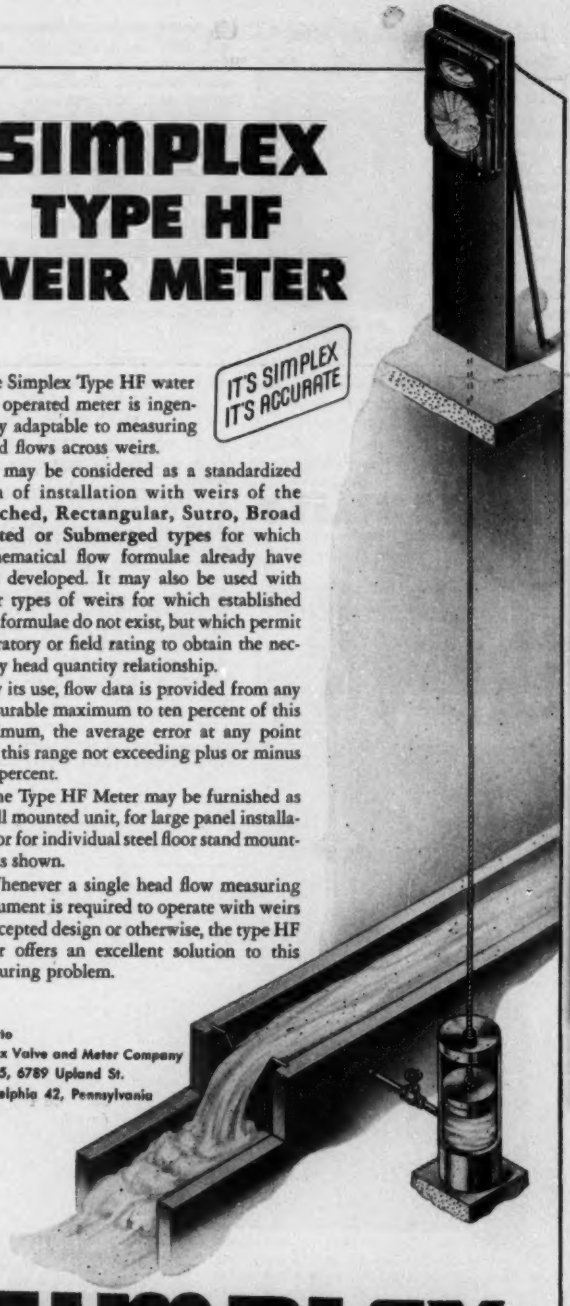
It may be considered as a standardized form of installation with weirs of the **Notched, Rectangular, Sutro, Broad Crested or Submerged types** for which mathematical flow formulae already have been developed. It may also be used with other types of weirs for which established flow formulae do not exist, but which permit laboratory or field rating to obtain the necessary head quantity relationship.

By its use, flow data is provided from any measurable maximum to ten percent of this maximum, the average error at any point over this range not exceeding plus or minus two percent.

The Type HF Meter may be furnished as a wall mounted unit, for large panel installation or for individual steel floor stand mounting as shown.

Whenever a single head flow measuring instrument is required to operate with weirs of accepted design or otherwise, the type HF meter offers an excellent solution to this measuring problem.

Write to
Simplex Valve and Meter Company
Dept. 5, 6789 Upland St.
Philadelphia 42, Pennsylvania



SIMPLEX
VALVE AND METER COMPANY

Industrial Chemicals Unit

The Pennsylvania Salt Mfg. Co., 1000 Widener Bldg., Philadelphia 7, Pa., has formed a new sales department, according to William P. Drake, vice-president. Known as the Industrial Chemicals Department, it combines the former heavy chemicals and special chemicals departments.

A. H. Clem

Albert H. Clem, former assistant to the vice-president in charge of sales, will head the new group, and will report to R. S. Roeller, assistant general sales manager. Previously, Mr. Clem served as a field representative and as assistant sales manager of the special chemicals department.

Also reported was the appointment of Edward M. Wilson as assistant to the vice-president in charge of sales, with supervision of all Pennsalt sales to the Federal Government.

District sales managers are: J. M. Davidson, Philadelphia; C. M. McCloskey, Paterson, N. J.; Donald Macfarlan, Detroit; W. P. Snelsire, Pittsburgh; John C. Hampson, Chicago; Donald W. Graham, Cincinnati, and C. H. Anderson, Appleton, Wis.

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The well-known reliability of R. D. Wood Gate Valves is a direct result of their simplicity—the absence of parts that could give trouble. There are only three moving members—the spreader and two discs. In opening, the discs are lifted clear of the seats, leaving an unobstructed passage for the flow of water. In closing, they are wedged into place without distortion. No gadgets to go wrong, no pockets to collect scale and sediment.

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Features of a 10-day calculating machine with automatic printed multiplication, division, addition, and subtraction include automatic credit balance, two-color printing, automatic multiplier count, automatic division, decimal indication, and automatic totals. It is designed for computing payrolls, inventory, interest, percentages, and discounting. Obtain circulars from Underwood Corp., One Park Ave, New York 16, N. Y.

Tools for Quick, Safe, Cheap Tree Trimming

The vast amount of tree trimming that has to be performed on trees in parks and along streets and parkways can be done by a chain saw or by saws mounted on pruning poles. Having the latter tools, a ready method of trimming is always instantly available.

A specialist in the manufacture and use of these hand tools is the J. B. Sebrell Corp., 300 S. Los Angeles St., Los Angeles, Calif. Besides the tree saws and palm frond cutters, there is a limb brace that aids the man operating the saw by preventing pinching. In addition to light-weight aluminum sectional poles, there is an "insulator" pole for use by tree trimmers working safely on streets carrying electric power lines.

How Not to Prune and *How to Prune Fruit and Shade Trees* is the title of an illustrated booklet issued by the firm.

An illustration prepared by the company to show how its equipment is used.

New Warning Flasher Light

The Neo-Flasher, a new warning flasher light, is examined by (left to right) Ernest Orsatti, co-owner of the patent covering the device manufactured by Light Products, Inc., 407C Commercial Center, Beverly Hills, Calif.; Police Chief Clinton H. Anderson of Beverly Hills, Calif., who has bought some of the lights, and Traffic Sergeant A. H. McBain, who uses them for attachment to vehicle or barricade from which the red flash is visible for two miles.

WIDE WORLD PHOTO

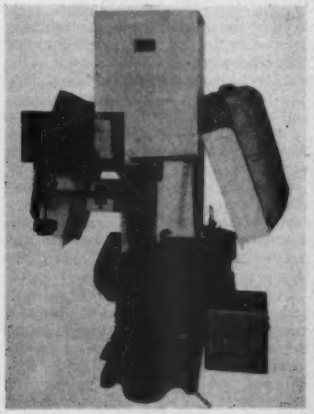
New Fluoridizer Has Large Hopper Capacity

Large hopper capacity is a feature of the new and improved Fluoridizer announced by the Omega Machine Co., 345 Harris Ave., Providence 1, R. I.

Known as Model 47-A, the machine feeds fluoride chemicals to water supplies. It also features dustless filling and low filling height as improvements. To avoid the need for frequent filling, this new hopper will hold two 100-pound bags of fluoride instead of one, or one 125-pound drum carton.

Dust production during filling is eliminated by preventing the fall of chemical through the air. The chemical is added to the bottom of the hopper.

The Fluoridizer has accuracy of feed, check of quantity fed, positive volumetric displacement, simple mechanism, and drive, and simplified lubrication.



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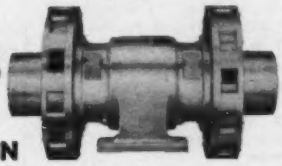

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Grooved Pipe Fittings Easy to Handle, Install

A complete new line of grooved pipe fittings has been announced by Gustin-Bacon Mfg. Co., Kansas City ,Mo. The Gruvagrip fittings include L's, T's, adapter nipples, crosses, laterals, bull plugs, and reducers.

They are available in sizes ¾ to 12 inches and withstand the same working pressures as Gruvagrips, the groove pipe couplings used in water-works and sewage disposal plants, petroleum, mining, construction and shipbuilding.

The fittings are light, and easy to handle and install. Inside walls are true circles, smooth and gently curved to prevent turbulence and frictional losses.

The fittings are 100% reclaimable, take readily to paint, and come painted with a prime coat containing two types of rust inhibitors.

Another product of Gustin-Bacon is Rolagrips—plain-end pipe couplings for petroleum, industrial plants, mining, construction, municipal works, shipbuilding, and military installations. No threading, grooving, flanging, or welding is needed for this equipment which is 100% reclaimable and is easy to apply. Rolagrips hold gas, air or fluids, permit misalignment of pipe, and can be used with light wall and second-hand pipe.

Purchase Oren Roanoke; Mrs. Brigham President

With the purchase of the majority interest in the Oren Roanoke Corp. and the retirement of its president, Mrs. Kathryn Lemon Windel, Mr. and Mrs. Francis S. Brigham have assumed control and active management of the firm. Located at 1201-09 W. Salem Ave., Roanoke, Va., the company produces motor fire apparatus.

Mrs. Brigham was elected president; Mr. Brigham, vice-president and general manager, and William K. Dyer, secretary. Robert W. LeBlond was appointed sales manager, succeeding Mr. Brigham.

In addition to its line of custom-built and commercial chassis-mounted pumpers, the firm plans to expand into the air-crash truck field when conditions permit. New literature on its 500-600 and 750-1,000 gallon pumpers is available.

Selenium Rectifier Welders Cut Fabrication Costs

Radial cone bottom-elliptical rooftop-type water tank erected for the City of Niagara Falls, N. Y., by Pittsburgh-Des Moines Steel Co. This 139-foot-high tower is 101 feet in diameter, and supported by 16 44-inch tubular columns. The riser pipe is 10 feet in diameter. The 748 tons of steel used in the tank's construction was butt-welded, using approximately eight tons of welding rod.

The Westinghouse Electric Corp., 306 Fourth Ave., Pittsburgh 30, Pa., reports that the City of Niagara Falls, N. Y., had a diesel fuel savings of 70% and maintenance savings of 85% because it used selenium rectifier welders during the erection of a 2,000,000 gallon water tower by the Pittsburgh-Des Moines Steel Co. Fuel savings were made possible by the use of one diesel-driven generator to supply power for eight Westinghouse selenium rectifier welders. Formerly, eight separate engine-driven welding generators were used. Maintenance required on the single diesel engine was approximately the same as that required on each of the eight units previously used.

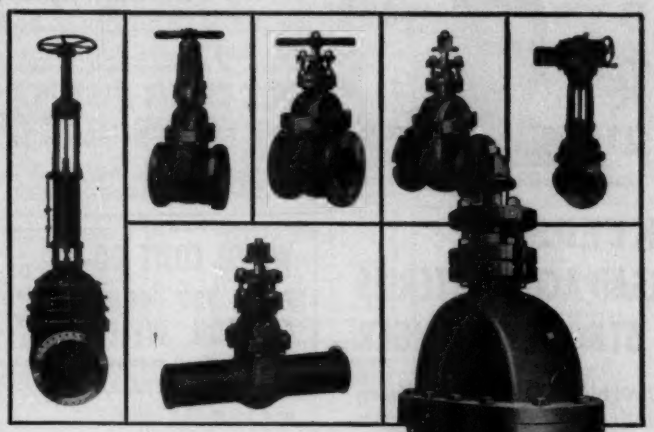
The diesel engine used to drive the generator supply power to the welders required 33 gallons of fuel per day. At 10 cents per gallon, the daily fuel costs ran $3.30. Previously, each of the single-engine driven welding generators required 15 gallons of fuel per day. For eight machines, a total of 120 gallons was required, or $12 per day for fuel.

Three Are Promoted

The promotions of three employees has been reported by Robert H. Owens, president of the Roots-Connersville Blower Corp., Connersville, Ind., one of the Dresser Industries.

E. P. Roudebush is works manager, D. A. Johann, sales manager, and A. E. Caudle, assistant sales manager.

KENNEDY A.W.W.A. GATE VALVES



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WRITE FOR BULLETIN 106

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SOME TERRITORIES OPEN

Sheboygan, Wis. Water Department Uses Hydrocrane For Faster Leak Repair and Greater Safety for Men

Good service to customers and safety for workmen in maintaining that service are two objectives which Jerome C. Zufelt, Superintendent of the Sheboygan, Wis., Water Department, considers of prime importance. His department has been better able to achieve both since beginning to use a hydraulic truck crane for many jobs formerly done by hand.

This machine has been found particularly valuable on leak-repair work, where it has reduced repair time as much as 50 per cent, according to Mr. Zufelt.

He points out that not only does the public benefit from shorter shut-off periods, with the crane uncovering leaks, but the repair crews can operate with greater safety. The men no longer have to fight quicksand and cave-ins when the crane is doing the digging. Today, work crews regard leak repair as just another job. Before the Hydrocrane was in use, this was the most unpopular work in the department.

The machine is also employed for laying pipe. On one job it handled 2,000 feet of 12-inch pipe, setting approximately 200 feet per day, and could have set 600 feet per day, if the trench had been ready.

Other uses for the crane include setting hydrants and valves, unloading pipe from gondola cars, and loading it on to trailers for transfer to job sites.

Hydrocranes are built in ¼-yard 2-ton and ⅜-yard 3-ton sizes by the Bucyrus-Erie Hydrocrane Division, South Milwaukee, Wis.

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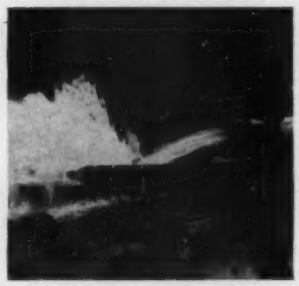

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The J. E. Woods Mfg. Co., 1516 First St., San Fernando, Calif., announces the appointment of Paul L. Matchette Co., of Kansas City, Mo., as a dealer of Surfa-Slick, self-heating asphalt smoothing iron, for the state of Kansas. Matchette handles a full line of asphaltic plant and construction equipment.

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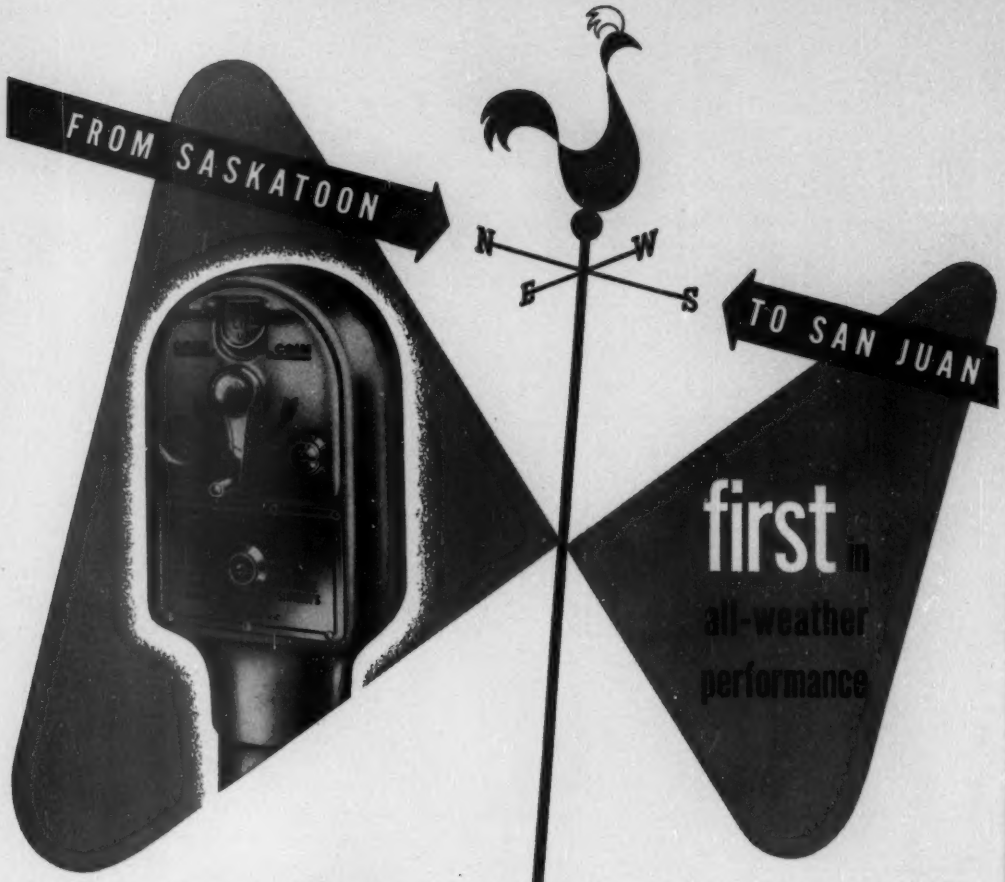

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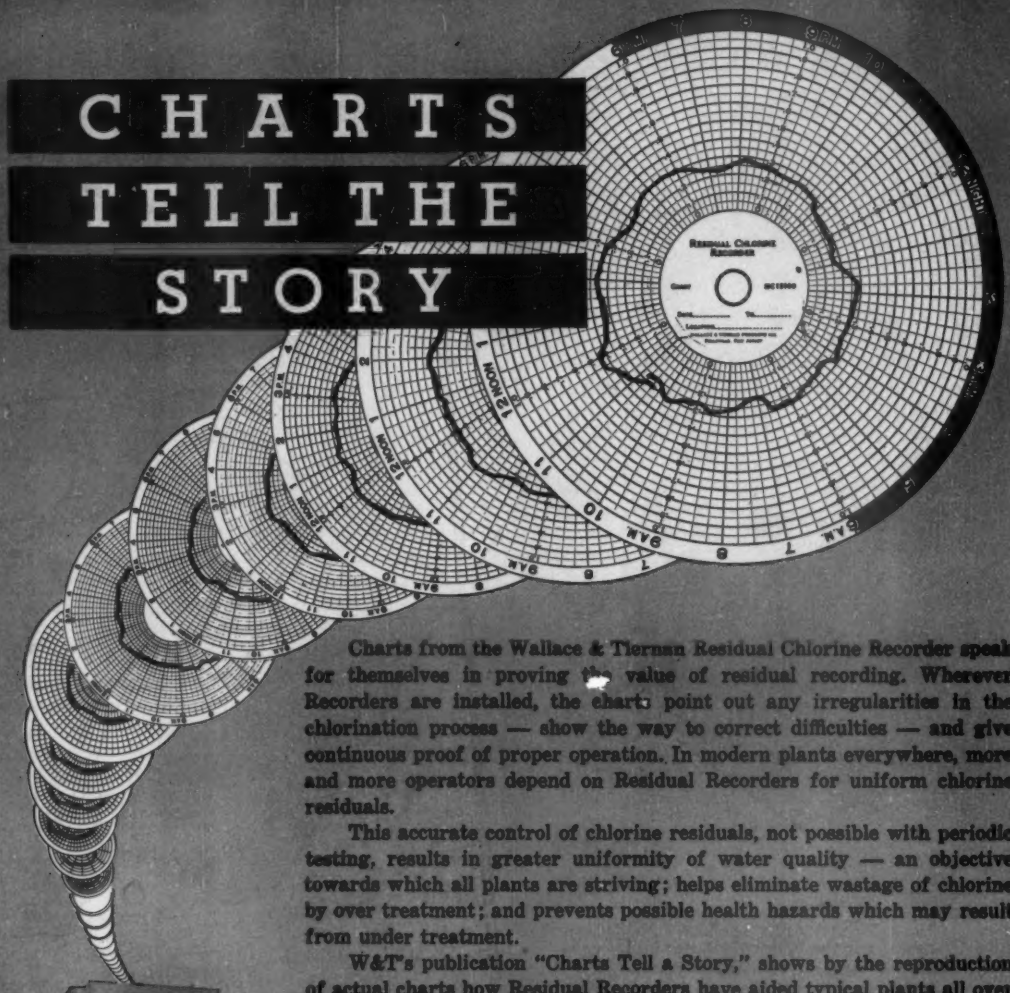

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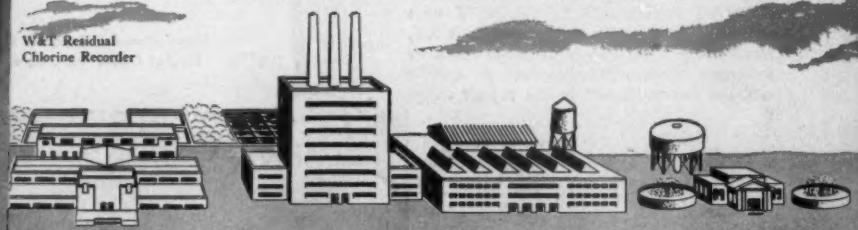

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